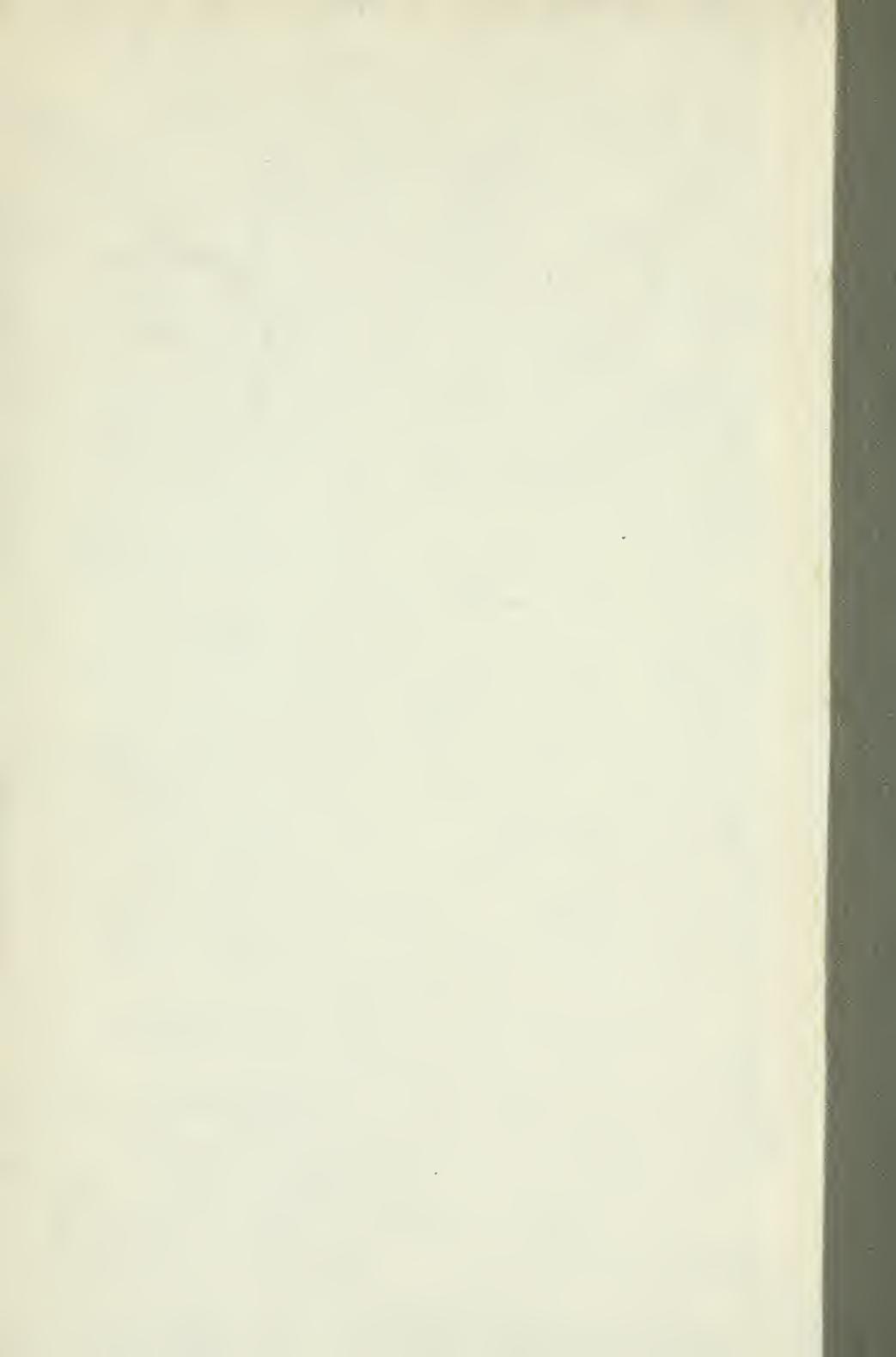


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A MONTHLY JOURNAL DEVOTED TO THE
DISEASES OF INFANTS AND CHILDREN

FOUNDED IN 1884 BY WM. PERRY WATSON, M.D.

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VOLUME XIX.

JANUARY TO DECEMBER.

1902.

*As per \$12.
11/12/02.*

E. B. TREAT & CO., PUBLISHERS.

NEW YORK.

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ARCHIVES OF PEDIATRICS.

VOL. XIX.]

JANUARY, 1902.

[No. 1.

Original Communications.

A CASE OF ACUTE HEMORRHAGIC NEPHRITIS COMPLICATING INFLUENZA IN AN INFANT OF THIRTEEN MONTHS, WITH AN ANALYSIS OF 40 CASES OF INFLUENZAL NEPHRITIS.*

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At the meeting of the American Pediatric Society, held in Washington, in May, 1900, R. G. Freeman²² reported a case of acute hemorrhagic nephritis, following influenza, in a child four years old, and in connection therewith analyzed 11 cases of this infrequent complication of influenza. An almost identical case in a much younger child came under the writer's observation during the winter of 1901, and is herewith presented, together with an analysis of 40 cases, which he has been able to collect from the literature.

After the plan and scope of this paper had been determined upon, and the references and other necessary data collected, the writer became acquainted with the article of Dr. Freeman covering almost the same ground; but as the present investigation is based upon more abundant material, and hence more valuable for drawing conclusions, it was decided to continue its preparation according to the original intention, even at the risk of some repetition.

CASE.—Emma, a healthy breast-fed infant of thirteen months, who had never before been ill, was taken sick suddenly on February 19, 1901, with high fever, coryza and cough. The next day vomiting began and was persistent, while the stools were loose and consisted of undigested milk and slightly blood-tinged mucus. The day following (February 21), when

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

the baby was brought for treatment, she presented the typical features of an ordinary catarrhal influenza, associated with a mild colitis and most harassing cough. The temperature was 102° F., the pulse 120. A fever mixture was prescribed and fractional doses of calomel. On the 22d, following the calomel, there were numerous stools of blood-tinged mucus, the vomiting was less and the temperature had fallen. Amelioration of the catarrhal symptoms followed; but on the 24th of February (sixth day), slight edema of the hands and of the lower limbs, below the knees, with a trifling fulness of the face, made its appearance. The child had passed no urine since early morning, and then but a small quantity, very red in color. The mother thought the baby had headache, as she carried her hand constantly to the head. The initial vomiting, which had somewhat subsided, had recurred with increased severity, but the diarrhea had ceased. By the catheter 30 c.c. of bloody urine was withdrawn, the first passed since early morning. Citrate of potash with warm baths and packs, and sinapisms to the lumbar region were ordered.

An examination of the urine by Dr. A. Hand, Jr., gave the following result: Color, red; strongly acid; specific gravity, —; albumin, 0.5, by bulk; sugar, negative; bile, negative; deposit, slight; microscope—abundant red blood cells, leucocytes, renal epithelium, many broad and narrow granular casts, numerous blood casts, 3 colloid casts, a few uric acid crystals. Diagnosis: Acute hemorrhagic nephritis.

No increased tension of the peripheral arteries could be detected, but the aortic second sound seemed possibly accentuated. By the 27th the edema was scarcely perceptible, and the urine was passed more freely, about four ounces in twenty-four hours; 19 c.c. of a light red urine were withdrawn by catheter and presented on analysis the same characters as on the 24th, except that the blood cells and various casts were more numerous, while no colloid casts could be discovered. The vomiting had ceased, but the cough was severe and paroxysmal. Examination of the chest was negative. The temperature was 99 4-5°, the pulse 116. The hot packs and baths had induced profuse sweating. Antipyrin was prescribed for the cough, while to the citrate small doses of the bitartrate of potash were added, with a daily bath and laxative dose of magnesia.

From the 27th of February to March 7th the patient slowly

improved; the kidneys acted more freely, but the urine remained slightly blood-tinged. Dr. Hand's analysis of a catheterized specimen on March 4th, showed numerous blood cells and leucocytes, and a few granular and hyaline casts. A week later Dr. A. A. Ghriskey found the urine to have a specific gravity of 1008 (estimated; quantity, 25 c.c.), many blood, epithelial and granular casts, and a few blood cells and leucocytes. From this time there was a gradual improvement, but the urine did not entirely clear up until March 31st (thirty-sixth day of the nephritis). One month later the infant caught a severe cold, with a return of the paroxysmal cough. Simultaneously, some urine of a very slight red color was voided containing a few red blood and epithelial cells, but no casts. This condition had entirely disappeared in a week, and the infant appeared to be in excellent health. After March 20th the treatment consisted in the administration of small doses of Basham's mixture and Fowler's solution. Subsequent to the initial fever, the temperature never rose above 100.5° F., usually ranging between 99° and 100° .

Although nephritis is well-recognized as one of the occasional complications of influenza, it is, according to statistics and the observation of experienced clinicians, of infrequent occurrence; observers, however, differ as to the frequency of the appearance. Thus, in the German collection investigation,²¹ it occurred 144 times in 3,185 cases (4.5 per cent.); Anton,²² of Wurzburg, found it in 2 per cent. of 100 cases; Gmeiner²³ in 1 per cent.; Guttmann²⁴ 4 times in 262 cases (1.52 per cent.); and H. S. Anders¹⁸ twice in 128 cases (1.56 per cent.). On the other hand, in the German army, only 10 cases of severe kidney inflammation were observed²² among 55,263 (.018 per cent.) cases of influenza, while O. Leichtenstern^{22,23} saw but 2 instances of nephritis in 439 cases (.45 per cent.), but believes it to be much more frequent, as after the epidemic of 1889 and 1890, much nephritis was seen, in which nothing beyond the preceding influenza could be discovered.

In children nephritis as a complication of influenza is even less frequently encountered. No mention whatever of it is made by Monti,²⁴ Ashby and Wright²⁵ and T. M. Rotch,²⁶ while C. W. Earle,²⁷ Holt,²⁸ Unger²⁹ and Vogel³⁰ merely refer to its possibility. Baginsky,⁴¹ C. Gerhardt⁴² and Henoch⁴³ also speak of a true nephritis, although the latter had never seen a case.

In the German collective investigation only once was an accompanying nephritis reported in a child.³¹ H. Gillet⁴⁴ refers to it as a serious sequel, usually attended by hematuria. A. D'Espine and C. Picot,⁴⁸ however, have observed it only in benign forms. On the other hand, Fürst⁴⁵ observed it 4 times (7.6 per cent.) in 52 cases of influenza in children, and A. Schlossman⁴⁶ in 3 per cent. of his cases.

Albuminuria, without the occurrence of true nephritis, is much more common. Senator³² met with it 18 times in 52, and Brandes³² 23 times in 29 cases; Anton^{29,32} in 5 per cent., Krehl³² in 3.5 per cent. and Teissier²⁴ in 50 per cent. of their cases. In 100 children over two years of age Schlossman⁴⁶ found albuminuria, and Baginsky⁴¹ and Holt³⁸ state that it is present in all severe cases.

Hematuria alone is not unusual. This condition was noticed by Curtin and Watson⁴⁹ in a considerable number of cases; it was accompanied sometimes by lumbar pains and scanty and dark urine. Instances have also been reported by Kraunhals,⁵² Drew,⁵⁰ Köppen,¹³ Poore,⁵³ Fräntzel³² and others.⁵⁴ Potain⁵¹ remarks that the nephritis of influenza is sometimes preceded by hematuria. No especial reference to its frequency in early life could be found, but in 5 out of 7 cases it occurred under twenty years of age.

Of 70 cases of nephritis complicating influenza, both in adults and children, which a careful search of the literature has discovered, only 40, including the writer's own case, were accompanied by sufficient clinical histories to form a basis for analysis. A brief *résumé* of these cases will be found at the close of this paper.

SEX.—Twenty-six of the 40 cases were in males and 13 in females; in one the sex was not mentioned.

AGE.—The oldest patient was sixty-five years (2 at sixty-five and 1 at sixty), and the youngest five months, of age; 25, or 64.1 per cent., occurred under the age of twenty-five years; 18, or 46.1 per cent., under sixteen, and ten, or 25.6 per cent., under twelve years. Under two years only 2 cases were reported, and those within the first year of life. Thus more than half of the cases were in young adults or children.

TIME OF ONSET.—The statements of Tuvache⁵⁵ and Lamarque⁵⁷ that the nephritis may come on during the course of the influenza, or insidiously, after the acute symptoms have

passed, are corroborated by this analysis, as the time of onset in 21 of 38 cases was within eight days of the commencement of the influenza, or 56.1 per cent., while 10, or 26.3 per cent., developed between the eighth and thirtieth day; the longest period being sixty-three days, the shortest three, and the average nineteen, days.

TYPE OF THE NEPHRITIS.—Some difference exists as to the clinical features of the nephritis. The ordinary type, according to Potain,⁵¹ is an albuminuria with casts and more or less edema. Fiessinger¹⁵ states that the nephritis may manifest itself in three ways: As a passing glomerulitis, with transitory albuminuria; as an acute hemorrhagic nephritis, without edema, and as acute Bright's disease, the latter being the most common. As noted above, Potain⁵¹ says that the nephritis is sometimes preceded by hematuria, and Tuvache⁵⁵ that it may be hemorrhagic; yet in Freeman's²³ analysis it was of the hemorrhagic type in 63 per cent. of the cases. The records on which this study is based show the same preponderance of this form, as blood was present in the urine of 27 of the 40 cases (67.5 per cent.), and in 21 of these, or 52.5 per cent., was in quantities sufficient to warrant the designation "hemorrhagic." Of these 21, 15 were under twenty-five (71.4 per cent.), and 11 (52.3 per cent.) under eighteen years of age, indicating that this type of nephritis is peculiar to young adults and children.

CASTS.—The presence of casts was noted in 34 cases (85 per cent.). In 8 their character was not mentioned; in 6 they were hyaline and epithelial alone, and in 20 hyaline granular and blood. In the writer's case, in addition to the other casts, 3 colloid casts were seen at the first examination only. Such casts do not necessarily indicate a chronic nephritis, much less amyloid degeneration. They are generally believed to be associated with serious lesions, resulting from degeneration of the renal epithelium,⁵⁶ and this would explain their presence in the case in question, which, from the intensity of the renal symptoms, was evidently due to a severe infection, while the complete recovery showed that the process was an acute one.*

ALBUMIN.—This was present in 39 of the 40 cases. The quantity was not stated in 9; in 16 it was in large, and in 14 in small, amount.

* According to C. W. Purdy⁶¹ these casts are found in all forms of nephritis.

QUANTITY OF URINE.—No reference as to this point was made in 14 cases. Of the remaining 26, it was scanty or diminished in 20, free in 5 and in 1 there was complete anuria.

EDEMA.—This symptom was observed in 19, or in less than half (47.5 per cent.) of the cases; in 4 of these it was of trifling character, while about one-half (47.6 per cent.) of the hemorrhagic cases were associated with edema.

FEVER.—The onset of the nephritis is usually accompanied by some elevation of temperature. Fever was mentioned in 18 cases; in 3 of these it was over 104° F., in 6 between 101° and 103°, in 3 between 99° and 100°, in 1 between 96° and 97° and in 5 the degree of temperature was not given.

Failure to mention this symptom in the remaining 22 does not indicate its absence, as it is probable that most cases are attended with some rise of temperature, although febrile cases are not infrequent.

DURATION OF THE NEPHRITIS.—This was stated definitely in 28 cases. In the longest it was nine and five months respectively, both resulting in death; in another, which recovered, it was four and a half months. The shortest cases lasted six days (3 cases), the average for the remaining 25 being nineteen and six-tenth days. In 84 per cent. the duration was under thirty days, in 72 per cent. under three weeks.

TERMINATION.—Recovery is the usual result in the nephritis of influenza (Lamarque,⁵⁷ A. Jacobi⁴⁷), although Tuvache⁵⁵ states that the prognosis is grave. Occasionally it passes over into the subacute or chronic form (F. Stricker,³¹ Potain,⁵¹ Lamarque,⁵⁷ Jacobi,⁴⁷ Tuvache,⁵⁵ Curtin and Watson⁴⁹), or it may terminate fatally. Of the 40 cases, 29 (72.5 per cent.) recovered, 7 died (17.5 per cent.) and 4 became subacute or chronic (10 per cent.); 2 of the cases died of chronic nephritis at nine and five months, respectively.

INFLUENCE OF PREVIOUS ATTACKS OF NEPHRITIS.—When influenza attacks a person whose kidneys are already diseased, the prognosis is grave, as it is apt to induce a serious and fatal lesion (Potain⁵¹). Tuvache⁵⁵ saw a case of this nature. V. Budde,⁶⁹ on the other hand, observed 2 patients with chronic parenchymatous nephritis, in which, beyond a temporary increase in the albumin and casts, a severe influenza appeared to have no untoward effect.

PATHOLOGY.—Autopsies were made in 4 of the cases. In 1

(Leyden's¹²), a female, twenty-five years old, the kidneys were found large and congested, and microscopically showed a glomerular or capsular nephritis. In the second case (Mosler's¹⁰), a male, seventeen years old, the autopsy revealed, in addition to other lesions, a hemorrhagic, parenchymatous, interstitial and glomerular nephritis. "The epithelium of the convoluted tubes showed all degrees of degeneration from cloudiness to complete fatty metamorphosis. In places proliferation of the capsular epithelium, and masses of cells between the glomerulus and capsule; the tubules filled with blood-cells, and areas of small-celled infiltration, especially in the neighborhood of the affected capsules." In the third case (Zahorskey's²⁰), an infant of five months, the kidney was softened and congested; numerous small hemorrhages were scattered throughout its substance, with hemorrhages into, and albuminous degeneration of, the uriniferous tubules. In the fourth case (Bonnelière's²²), no lesion beyond renal engorgement was mentioned. The anatomo-pathological lesions of influenzal nephritis are, according to Potain,⁵¹ difficult to determine. In addition to glomerular and parenchymatous nephritis, Du Ponchell⁵¹ reported a case of interstitial nephritis, Beneke⁵⁸ 2 cases in which extensive necrotic processes had occurred, and Tuvache⁵⁵ a case of mixed nephritis. The lesions, indeed, are those of an infectious or toxic nephritis, whose type is the scarlatiniform, the glomerulo-nephritis of Klebs (Tuvache⁵⁵).

From this study the following conclusions seem warranted:

Nephritis is a rare complication of influenza, occurring chiefly in young adults and children and in infancy is almost unknown. Albuminuria is more common, and is probably present in all severe cases. Hematuria alone is not infrequent, and, like the nephritis, is seen oftenest in early life. The sexes are affected equally. The nephritis may appear early in the influenza, or at varying periods after the acute symptoms have subsided. It is usually an early complication, occurring in one-half the cases within eight, and in two-thirds of the cases within twenty-one days of the commencement of the influenza. The clinical type varies; it may be that of an ordinary acute nephritis, but in the majority of cases is of the hemorrhagic type, this form being especially frequent in young adults and children. Edema is absent in more than half of the cases, and is apt to be slight. The onset is usually attended

with fever. The nephritis is of short duration, generally lasting under three weeks. The prognosis is good, recovery being the rule; although a small number of cases passes into the chronic subacute stage. When influenza attacks those whose kidneys are already diseased, it is apt to be serious and fatal. From the meagre pathological reports the lesions appear to be those of an infectious or toxic nephritis, often taking the form of a glomerulo-nephritis.

RÉSUMÉ OF REPORTED CASES OF INFLUENZAL NEPHRITIS.

I. A. A. HOEHLING.¹—Male, twenty-five years; gonorrhea, February 11, 1890; on February 25th, influenza; March 9th, urethral discharge almost ceased; March 11th, chill, lumbar pains, temperature 100° - 103° F.; March 17th (twentieth day), blood casts and albumin in urine; April 27th (seventeenth day of nephritis), recovery; nephritis lasted seventeen days.

II. IBID.—Male, influenza in December, 1889; nephritis shortly after; February 28, 1889, albumin $\frac{1}{4}$ per cent., hyaline and granular casts, which persisted at last examination, May 17th.

III.—LESNÉ.²—Male, eleven years; February 28, 1895, severe influenza, temperature 40° C.; March 4th (fifth day), 500 gms. of dark urine, containing blood and albumin (notable amounts), temperature 39.8° , 38.4° C.; March 7th, edema of the face, 250 gms. urine; March 9th, acute rheumatism and pleurisy; old mitral insufficiency; rheumatism lasted until March 15th, when hematuria returned and albumin; March 16th, recovery; nephritis lasted thirteen days.

IV. DANFORTH.³—Male, sixty-five years; one week after moderate attack of influenza, relapse, with intermittent pyrexia; urine, twenty to twenty-four ozs., specific gravity, 1024-30, much albumin, few red blood-cells and leucocytes, mucin and hyaline casts; in four weeks, recovery; nephritis lasted twenty-eight days.

V. G. BAUMGARTEN.⁴—Female, forty years; December 3d, moderate influenza; last days of December (twenty-seventh day), headache, edema and slight fever; January 2d, albumin and few casts; January 8th, urine bloody and blood in varying amounts till January 29; casts were various; specific gravity, 1024-22-17, leucocytes and many red blood-corpuscles, albumin 1-10 to 1-3; nephritis lasted four and a half months.

VI. IBID.—Male, forty-four years; influenza November 9th; never fully recovered strength; December 14th (thirty-sixth day), headache, malaise, leg-pains, cough and albuminuria; fourteen days later, edema of legs; albumin $\frac{5}{8}$ per cent., hyaline and granular casts; died from hydropericardium; never had nephritis before.

VII. IBID.—Male, sixty-five years; influenza in March; March 30th, sudden increase of fever and severe abdominal pain; April 6th (thirty-sixth day), urine scanty, specific gravity, 1022, 1 per cent. albumin, granular and hyaline casts; traces of albumin and casts persisted until June 3d; recovery; duration of nephritis, fifty-eight days; three years later in good health.

VIII. IBID.—Female, eighteen years; scarlet fever at thirteen years, kidney not affected then; severe influenza in winter of 1892-93; never fully recovered health; April 14th, 1 per cent. albumin, leucocytes, red blood-corpules, hyaline, granular and epithelial casts; condition persisted until January, 1895, when death in uremic coma; edema of legs, ankles and face; duration of nephritis, nine months.

IX. IBID.—Female, nineteen years; scarlet fever in childhood; five years ago mild diphtheria; August, 1894, influenza followed by otitis media; continued ill-health, sick headache and vomiting; in March, 1895, albuminuric retinitis; March 25, 1895, second attack of influenza; urine contained $\frac{2}{3}$ per cent. albumin, specific gravity, 1025, hyaline casts; albumin still present at date of report (May, 1895).

X. IBID.—Female, forty-three years; moderately severe influenza, December 12, 1894; December 26th (fifteenth day), scanty urine, $\frac{1}{2}$ per cent. albumin, hyaline and granular casts, white and red blood-cells; edema of legs and hands; recovery, February 3d; nephritis lasted forty days.

XI. IBID.—Male, twenty-seven years; influenza May 14, 1895; severe, high temperature, vomiting, backache; May 18th, 200 c.c. of bloody urine (*i.e.*, fifth day), $\frac{1}{2}$ per cent. albumin, specific gravity, 1018, numerous red blood-cells and casts, epithelial and granular casts; temperature 101° to 103° F.; May 19th-20th, scanty and bloody urine (300 c.c.) again; vomiting occasional; gradual improvement, which continued to date of report (May, 1895); probable recovery.

XII. J. W. FRASER.⁵—Male, nine years; March 2d, influenza of

ordinary type; March 7th (sixth day), scanty bloody urine, albumin 0.2 per cent., blood and granular casts, renal epithelium; temperature 101° F.; trifling edema of ankles; March 10th, specific gravity, 1026, hyaline casts, trace of albumin; March 28, recovery; nephritis lasted twenty-two days.

XIII. E. MANSEL-SYMPSON.⁶—Male, eleven years; influenza beginning of March (severe); lasted two weeks, left patient debilitated; March 16th (sixteenth day), sudden, severe vomiting, headache and lumbar pains; temperature 100.1° F.; ankles edematous; one pint urine (twenty-four hours), specific gravity 1015, hyaline casts and blood-cells, albumin, $\frac{1}{8}$; April 1st, only trace of albumin; recovery; nephritis lasted a "few weeks."

XIV. W. B. RUSSELL.⁷—Young woman; severe influenza; backache, abdominal pain and vomiting; with these symptoms, scanty urine, dark porter color, some red blood-cells, numerous epithelial and blood casts, abundant albumin; recovery; nephritis lasted "some weeks."

XV. IBID.—Young woman; influenza with severe sore throat; temperature, 102° F.; shortly after onset scanty and very bloody urine ("looked like pure blood"), numerous blood casts and red blood-cells; extreme cardiac weakness and vomiting; fever; epithelial replaced blood casts in a few days; albumin; recovery; nephritis lasted a "few weeks."

XVI. N. BOCK.⁸—Female, thirty-two years; beginning of December, influenza; convalescent in ten days, but debilitated; December 18th (eighteenth day), dark urine containing metahemoglobin and numerous red blood-corpuscles; left lumbar pain (left kidney larger than right); urine scanty (300-500 c.c.), numerous epithelial and blood casts, small amount of albumin; hematuria lasted until all trace of renal disease had disappeared; recovery complete in three weeks.

XVII. E. A. PIGGOTT.⁹—Male, forty-two years; June 9th, severe influenza, temperature 104° F.; June 11th (third day), dark, smoky urine, numerous red blood-cells, large amount of albumin, epithelial casts; pulse and temperature continued high; June 13th, subsidence of acute symptoms; slow convalescence; recovery.

XVIII. FR. MOSLER.¹⁰—Male, seventeen years; four weeks after severe influenza, intense lumbar pains, high fever (40° C.), sopor, apathy, irregular pupils; scanty, bloody urine; later

complete anuria, coma and death on thirty-sixth day; autopsy: gastroenteritis, pleurisy, hypostatic pneumonia and bronchitis, pericarditis and parenchymatous nephritis, with numerous punctate hemorrhages; microscopic diagnosis: nephritis hemorrhag. parenchym. et interstitialis; glomerulo-nephritis; nephritis lasted eight days.

XIX. F. GUTTMANN.¹¹—Male, eighteen and a half years; early in influenza when bronchitis was severe, with free urinary flow (1075 c.c.), albuminuria ($1\frac{1}{2}$ pro mille—Esbach—to $\frac{1}{4}$ pro mille), specific gravity, 1017-18; red and white blood-corpuscles and hyaline and granular casts; recovery.

XX. IBID.—Male, fifty-four years; during an influenzal pneumonia, albuminuria (1 pro mille to 25 pro mille), and hyaline and granular casts; urine, 750 to 1050 c.c. daily; specific gravity, 1014-16; recovery; nephritis lasted seven days.

XXI. E. LEYDEN.¹²—Female, twenty-five years; influenza in beginning of December; remained weak; beginning of January (thirty-fifth day), eight days of violent vomiting; urine dark, scanty, 200 c.c. daily, contained blood and abundant albumin; otitis present and high grade of anemia; death; autopsy: kidneys large and congested, and microscopically showed glomerular or capsular nephritis; nephritis lasted thirty days.

XXII. A. KÖPPEN.¹³—Male, thirty years; severe influenza on March 13; temperature 38.8° C.; vomiting, intense back and head pains; March 15 (third day), scanty, dark urine, specific gravity, 1024, albumin, $\frac{1}{2}$ per cent., large number red blood-cells and leucocytes, former in heaps and casts; amount of urine, 250 c.c.; hematuria persisted till March 23; recovery; nephritis lasted eight days.

XXIII. BAUDET.¹⁴—Child, nine years; ordinary influenza; on twelfth day edema of malleoli and face and lumbar pains; urine contained albumin and casts; recovery; nephritis lasted ten days.

XXIV. CH. FIESSINGER.¹⁵—Male, sixteen years; March 18th, severe influenza, chill, headache; temperature 40.7° C.; cough, diarrhea and vomiting; March 21 (fourth day), urine bloody, 1 litre in amount, epithelial casts, numerous red blood-cells and albumin; recovery on March 25th; nephritis lasted six days.

XXV. IBID.—Female, three years; influenza on December 20th; temperature 40.8° C.; bronchitis; January 11th (twenty-third day), lumbar pains and edema of feet and face; large

amount of albumin, epithelial casts; temperature 37.8° - 9° C.; recovery, January 28; nephritis lasted seventeen days.

XXVI. IBID.—Male, eight years; influenza with angina on February 9th; temperature 39.8° C.; February 13th (fifth day), edema of the face; albumin and epithelial casts; February 26th, urine free; recovery; nephritis lasted fourteen days.

The same author, in another paper,¹⁶ describes an epidemic of acute nephritis occurring in a small village. Although influenza was epidemic at the time, and notwithstanding that 9 of the 14 cases were immediately preceded by influenza, he did not consider, that the latter bore any etiological relation to the nephritis, because the 5 remaining cases were not preceded by that disease. Three of his cases, however, appeared to be so closely connected with an attack of influenza that they are included in this résumé.

XXVII. IBID.¹⁶—Female, seventeen years; influenza end of January; eight days after recovery, February 17th, headache and anorexia, vomiting, edema; February 21, urine scanty, contained blood, albumin and epithelial casts; few days later granular casts in large numbers, temperature 40° C.; February 27, death; nephritis lasted eleven days.

XXVIII. IBID.—Male, sixteen years; middle of February influenza; on eighth day from onset of influenza, edema of the face; five days later granular and epithelial casts; on ninth day of nephritis, uremic convulsions, scanty urine and 4 per cent. albumin; complete recovery; nephritis lasted nineteen days.

XXIX. IBID.—Male, twenty-one years; influenza in middle of February; on eighth day (February 22d) abdominal pain and edema of legs; urine contained traces of albumin and casts; complete recovery by March 1st; nephritis lasted seven days.

XXX. WEICHSELBAUM.¹⁷—Young girl; severe influenza at Christmas; January 11th (seventeenth day), high fever, intense lumbar and leg pains; urine rich in albumin; recovery; author regarded it as nephritis complicating influenza.

XXXI. H. S. ANDERS.¹⁸—Male, thirty-eight years; alcoholic and syphilitic; characteristic influenza; in a few days edema; copious albumin ($\frac{1}{3}$); tube casts, epithelial and granular; death in uremic coma.

XXXII. IBID.—Male, eighteen years; influenza; in a few days edema; albumin ($\frac{1}{2}$) and granular and epithelial casts; extreme anasarca; recovery.

XXXIII. VIGNEROT.¹⁹—Male, thirty-three years; January 15th, severe influenza; chills, fever, intense lumbar pains; convalescent in eight days; March 10th (forty-sixth day after recovery from grippe), edema of legs, urine $1\frac{1}{2}$ litres daily, 5 gms. albumin per litre; death from uremia May 2d; nephritis lasted fifty-four days.

XXXIV. IBID.—Male, thirty-one years; influenza in February; resumed work in eight days, but did not fully recover; in May, urine dark red, scanty; vomiting and edema, lumbar pains; urine 1 litre in twenty-four hours, considerable albumin; temperature 36° C.; in September uremic convulsions; death September 22d; duration of nephritis, five months.

XXXV. JOHN ZAHORSKEY.²⁰—Male, five months; previously apparently healthy; attacked with influenza January, 1900; on third day cerebral symptoms, slight cervical opisthotonus, small pupils, coma; persistent cough, chest examination negative; urine not examined and hematuria not observed, although may have been present; death in one week from onset of influenza. Autopsy: Nothing of note in brain or thorax; right kidney softened; small hemorrhages scattered throughout substance; microscope showed hemorrhagic areas and albuminous degeneration of tubules; left kidney normal; cultures from diseased kidney remained normal; nephritis lasted eight days.

XXXVI. J. G. EDGREN.²¹—Male, thirty-six years; influenza December 11th; recovery, but remained debilitated; February 18th (sixty-ninth day), albumin discovered; urine, 1,100 c.c. daily; 0.1 per cent. albumin, hyaline casts, leucocytes and renal epithelium; condition continued until discharge, March 13, 1890.

XXXVII. ÉMILE BONNELIERE.²²—Female, sixty years; influenza January 19th; severe pains in loins; temperature 39.5° C.; marked bronchitis and diarrhea; in a few days traces of albumin in dark red urine, casts and much blood; symptoms increased until death on January 30th; nephritis lasted thirteen days. Autopsy: Kidneys gorged with blood.

XXXVIII. IBID.—Male, seventeen years; February 13th influenza of severe type; from onset severe lumbar pains and dark urine; temperature 39° C.; typhoid state; pulmonary congestion and pericarditis; slight edema of face and malleoli; defective sight; 1 grm. albumin per litre urine, numerous red blood-cells

and casts; hematuria lasted until March 5th; recovery; nephritis lasted twenty-five days.

XXXIX. R. G. FREEMAN.²³—Male, four years; January 1, 1899, ordinary influenza with moderate fever, prostration, ear-ache without discharge; January 31st (thirtieth day), temperature 102.5° F.; highest temperature 105°, on February 5th; temperature diminished, and on February 9th varied between 100° and 101°; normal on the 10th; February 6th passed red urine, containing on the 9th considerable blood, 2 ounces in twenty-four hours; later, 6-14 ounces daily; albumin, 5 per cent. (bulk), hyaline and blood casts; specific gravity, 1022; blood persisted five days, casts ten days; no edema; child well one year after; nephritis lasted ten days.

In addition to the above, the following cases of influenzal nephritis are reported with clinical histories too meagre for analysis: Diaro,²⁷ 2 cases, one in a female eighteen years, ending in death; a second in a male forty-four years, with death on fifteenth day. Anton,²⁹ 2 cases, one ending in recovery on the second day; the other, with abundant albumin and casts, also recovered after a short illness. Strümpell,²⁸ 2 cases, one of pronounced hemorrhagic character, which disappeared in a few days; another, more severe and prolonged, in an influenza empyema. Fussel,³⁰ 2 cases of post-influenzal parenchymatous nephritis. Teissier,²⁴ a case in a female of eighteen years, terminating fatally. Shattuck,²⁶ Chostowski,²⁵ Umpfenbach⁶⁰ and J. I. Bolton⁶ have also reported cases.

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A Method of Increasing the Amount of Fat in Diluted and Sterilized Cow's Milk to the Normal Amount of Fat in Woman's Milk.—Romanoff (*Vratch*, September 1, O. S., 1901) has devised a simple method of modifying milk on the "cream mixture" principle. Fresh milk is diluted with equal parts of oatmeal water containing 4 per cent. of sugar. The mixture is poured into six bottles and sterilized in Soxhlet's apparatus for ten minutes. The bottles in the "bottle holder" of the sterilizer are then placed on ice for "from two to three hours." Then they are carefully removed, without shaking, and, by means of a siphon dipped to the bottom of each bottle, the lower half of their contents is drawn off. The remaining milk is shaken, warmed and given to the infant. Examinations of this residue showed that it contained from three to four times as much fat as the part removed by siphoning. The residue in the feeding bottle averaged from 2.9 to 3.6 per cent. of fat. As the dilution and addition of sugar before the sterilization corrected the differences between cow's milk and woman's milk as regards proteids and carbohydrates, and as it is easy with moderately rich milk to get an average of 3.5 per cent. of fat in the product by this method, the author recommends his procedure as a mode of obtaining an artificial milk mixture approximating woman's milk in composition.—*New York Medical Journal*.

AMAUROTIC FAMILY IDIOCY.*

BY A. C. COTTON, A.M., M.D.,
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Thus far our researches of cases of this interesting disease have failed to find more than 36 recorded. In 1889 Sachs collected 29 cases. Since then Hirsch, Petersen, Patrick, Kuh and Welt-Kakels have reported 1 each and Clairborne claims to have seen 5.

REPORT OF CASE.—Rosa F. aet two years, of Hebrew parentage was referred to me June 10, 1900, as a case of rachitic malnutrition.

FAMILY HISTORY is negative except for fatal tuberculosis in a paternal uncle. (Later I learned that the father's cousin's only child, J. S., died in convulsions at twenty months, blind, idiotic and never having been able to stand or sit erect. Concerning this latter child the attending physician, Dr. Ginsburg, states that he first noticed evidence of blindness a little before age of six weeks.)

The parents of the patient are living and in good health; well-to-do tradespeople, able and anxious to give every possible advantage in the care of their child. There is no consanguinity of parents and no history of syphilis. An older child died at $7\frac{1}{2}$ months of cholera infantum. A younger child, now six weeks old seems normal.

PERSONAL HISTORY.—Gestation and birth were normal. Initial weight 9 lbs. Nursed 15 months and then was weaned because of pregnancy of mother. Seemed well in every respect until six months of age when she had an attack of bronchitis. From this she made a good recovery, but soon after suffered from a second cold from which convalescence was somewhat tardy. Has never had any of the exanthemata. Eruption of first tooth occurred at one year of age. It is stated that at the usual time (about the ninth month) the patient was able to stand with support. From this time on the child showed progressive

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

muscular debility with increasing disinclination to use limbs. From earliest infancy she was easily startled. Appetite was good, although solids were swallowed with difficulty. Always constipated. Blindness has gradually developed.

PRESENT CONDITION.—June 10, 1900.—A plump child of average size, with some evidence of atrophy of lower extremities; anemic. Head measures 19 inches in circumference. Expression is blank except when the face shares in general convulsion. Convergent strabismus is present. Pupils are unequal in size, the right being twice the size of the left. There is no response to light. All tests fail to give any evidence of vision and the child undoubtedly is totally blind. There is a high arched palate. She is unable to hold up her head or to use her limbs. The mother says she lies on either side, but whenever seen the face is drawn to the right. There is spasticity of both upper and lower limbs, most marked in right arm. "Claw hands."

Reflexes are enormously exaggerated. A striking feature is the sensitiveness to sound and touch. The slightest noise or the least jar brings on a spasm, during which the eyes waver vertically *i.e.*, nystagmus, the arms are rotated internally and adducted, there is frothing at the mouth and the whole body is slightly involved. These spasms last from fifteen to sixty seconds and are followed by moaning. They are repeated every time she is disturbed. Temperature normal, pulse rather rapid.

I saw the child several times, both at my office and at the clinic. At the first visit a positive diagnosis was not made but the girl was presented at the clinic as a possible case of cerebellar tumor of tubercular character. She was referred to Dr. C. D. Wescott for examination of fundus. His report cleared the diagnosis. It is as follows:

"The case of Rosa F., whose eyes we examined June 26, 1900. The examination was quite difficult for the reason that the child's head had to be held and she was extremely sensitive to external impressions; furthermore, she had quite characteristic lateral nystagmus, which also increased the difficulty of getting more than a momentary view of any part of the fundus. It was possible to make out, however, that the discs were normal and the choroidal rings distinct. The choroid, so far as could be seen, seemed perfectly normal. The feature of the eye ground, which at once attracted attention, however, was a

large, dark reddish-brown disc, occupying the situation of the macula and surrounded by a larger whitish zone about twice or two and a half times the diameter of the optic disc. It was possibly a trifle longer horizontally than vertically; apparently denser near the centre immediately around the dark colored disc and gradually shading off into the normal red of the surrounding eye ground. The brown disc at the macula was regular in outline and decidedly not as red as the spot which we see in embolism of the central artery of the retina. As pointed out by Beard, the whitish zone about the central dark spot was nebulous, rather than cloudy, and denser immediately about the dark spot. The retinal vessels which entered the area, could be seen through it."

After several visits the case was lost sight of because the family moved to the country for the summer. The subsequent history was obtained from the mother and shows nothing eventful except the increasing difficulty in swallowing, inanition and death during a convulsion on August 1, 1900. No autopsy was allowed.

Amaurotic family idiocy is a name suggested by Sachs for a disorder which begins during the first six months of life in apparently normal infants, without history of complicated labor and terminating in death before the third year. (One exception is recorded by Petersen. He reports the child living at the age of five and one half years, blind and idiotic. Two other members of the family succumbed to this disease at seven and ten months respectively.)

As now understood the group of symptoms is sufficiently constant and peculiar to render diagnosis easy and unmistakable. Of these amaurosis is always present, and the ocular findings as accurately described for the first time by Warren Tay in 1881, have come to be regarded as pathognomonic of this disease. The foregoing presupposes a complete development of the disorder and presentation of all the clinical findings.

Diagnosis without the characteristic changes of the macula lutea the disorder might be mistaken for rachitic pseudo-paralysis, as was the case with Jacobi and my predecessor. Cerebellar tumor which actually appeared as a complication in the case reported by Clairborne; tubercular marasmus, spastic diplegia or congenital blindness in an idiot. All of these have probably served as diagnoses in many unrecognized cases of

amaurotic family idiocy. So, too, in the early stage, with the most careful ophthalmoscopic examination, difficulty in diagnosis may obtain because of the lack of full development of ocular changes, as in Koller's and Petersen's cases. The difficulty of making a satisfactory ophthalmoscopic examination, the evident lack of mental development and the welcomed early death all tend to discourage a painstaking diagnosis and induce the writer to believe this disease is not so rare as the limited number of cases recorded would suggest.

Of the symptoms four are constant, viz.: idiocy, characteristic changes in macula lutea, paralysis, and early death. Of the other symptoms recorded there may or may not be nystagmus, strabismus, spasticity, flaccidity, convulsions, tremors, exaggerated, normal or subnormal reflexes, dysphagia, hyperacusis and hyperesthesia. Semitic parentage has been noted in nearly every case.

Although most of the reports from Tay down recognize a suggestive family character to this disorder, many exceptions are observed, as in my own case—but one of a family of three being affected.

Since the prognosis is invariably fatal and all therapeutic measures are admittedly hopeless, our interest mainly centres on etiology with a view to prophylaxis.

Post-mortems, though few in number, seem to establish the fact of a progressive degeneration of the cellular elements of the entire nervous system, though whether primary or secondary still seems a matter of dispute. No vascular or inflammatory changes have ever been found. Sachs' change in name from Agnesis Cortical is suggestive of his theory of its etiology—to Amaurotic Family Idiocy—a clinical classification—expresses the absence of definite knowledge at present. Hirsch's theory, somewhat favored by Jacobi, of an infection, possibly derived from the mother's milk, if susceptible of demonstration, promises an easy solution to the question of prophylaxis in artificial feeding, as these children seem normal at birth. Opposed to this theory of some toxin in mother's milk is the fact, brought out by Sachs in the discussion, that two of his cases were not breast-fed.

Report of this case has been delayed with the hope that observation of the surviving child, as well as of a cousin's child, would add to the interest. The remaining child, now nearly

one year old shows no marked departure from the normal, except a tendency to rachitic development, with a history of convulsions during a febrile attack at six months. This was reported as due to indigestion.

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DISCUSSION.

DR. MORSE.—I merely wish to say that I agree with the reader of the paper that these cases must be more numerous than we should judge from the number that have been reported. I myself have seen three typical cases with the characteristic eye grounds; two were of Jewish parentage and one of American. They all died at an early age.

Importance of Zymases in Infant Feeding.—A. B. Marfan (*Presse Medicale*) says that the presence of a zymase in human milk has been established, and Marfan has also found a lipase and an anaero-oxydase. He believes that milk is not an inert fluid, but that it partakes of some of the properties of the tissues. It is possible that the ferments in it have a stimulating and regulating action on the nutrition until the organism has developed sufficiently to supply its own stimulating and regulating substances. Each kind of milk has probably its special ferments, and it may be a mistake to destroy them in sterilizing the milk. The aim in artificial feeding, therefore, should be to add to sterilized cow's milk the zymases peculiar to human milk.—*Journal of the American Medical Association*.

HIGH TEMPERATURE OF THREE MONTHS' DURATION,
WITH DOUBLE SACCULATED EMPYEMA, SITUATED
ON ONE SIDE ON THE DIAPHRAGMATIC
SURFACE OF THE LUNG.*

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Few conditions are more puzzling than cases of prolonged high temperature when it is not accompanied either by physical signs or rational symptoms which are proportionate to the degree of fever. The case, the temperature chart of which is presented, was one of the most obscure that has come under my observation. It was peculiar not only for the duration, but the wide fluctuations of the temperature, for which no adequate cause could be found, and no diagnosis that was satisfactory was reached during life.

The patient, a boy two and a half years old, was admitted to the New York Foundling Hospital, on January 10, 1901, and was acutely ill until his death on May 2d, a period of nearly four months. The complete chart is not given on account of its size, but the temperature curve for the periods omitted, differed in no important way from that which immediately preceded or followed. He came under my personal observation three weeks before his death, having previously been under the care of my colleagues, Drs. J. J. Reid and R. G. Freeman.

On admission the general condition was good, and the child showed no evidence of any serious illness, except a moderate diarrhea which the history stated had existed for some time. For the first two weeks of observation his temperature ranged from 98° to 100°, except upon a single day; his stools were somewhat indigested, were rather frequent and at times contained mucus. He did not, however, appear seriously ill.

During the third week was witnessed a sharp rise in the temperature, which was characterized by wide fluctuations between 98° and 106.2° F. As the spleen was considerably enlarged, although no malarial organisms could be found in the

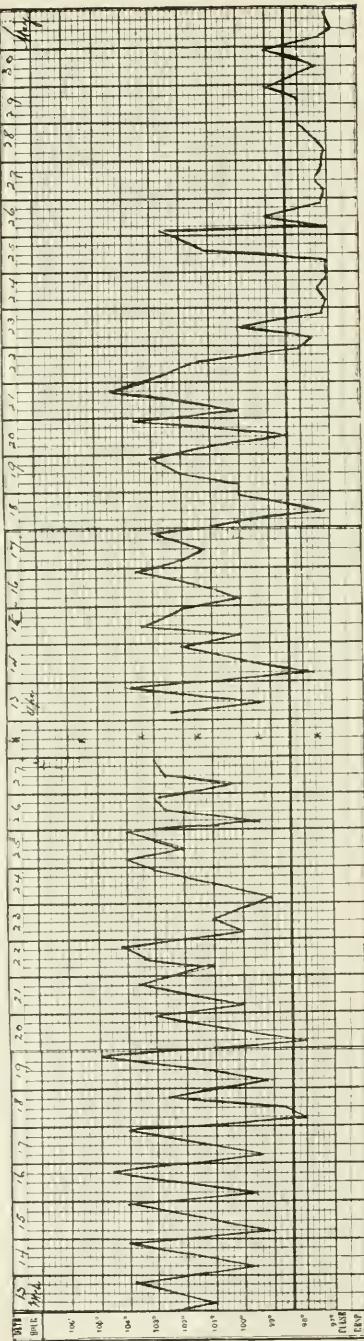
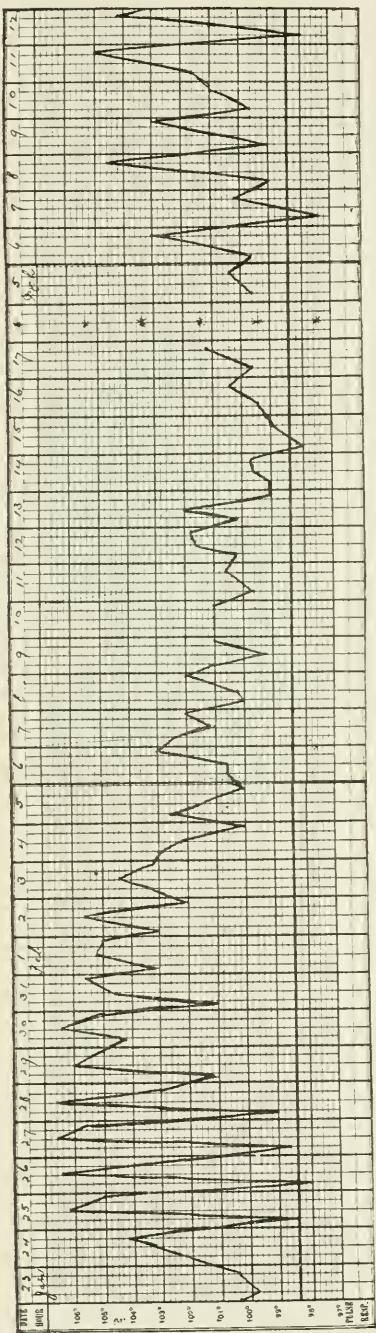
* Read before the American Pediatric Society, at Niagara Falls, N. Y., May 27, 28, 29, 1901.

blood, on repeated examinations, quinine was administered in full doses both by mouth and hypodermically, but without any perceptible effect either on the temperature or the general symptoms. It was not until the high temperature had lasted for four or five days that any signs of disease were discovered in the lungs, and then only a few râles were present. Not until the ninth day, February 3d, were there any signs of consolidation detected; these appeared in the right upper lobe which became later almost completely solidified.

These signs greatly diminished in the course of the next few days as the temperature declined; but they did not entirely disappear and nearly always thereafter were to be heard a few coarse râles, occasional friction sounds, and rude breathing, while the percussion note remained slightly dull. The intestinal condition did not improve during this acute attack, nor was it distinctly worse. There were from five to ten passages a day, mostly small, usually loose and sometimes foul. The symptoms continued without special change throughout the month of March, the patient still very anemic and steadily losing weight. Widal tests were made with negative results. A leucocyte count made March 20th, showed 28,000.

On April 1st, there was a slight increase in the pulmonary signs, and râles were now heard over both sides of the chest. On April 12th, at the base of the left lung, near the spine, slight dulness was present over a small area with rather feeble bronchial breathing; the signs upon the right side remaining about as before, viz.: rather feeble breathing, very slight dulness but coarse râles and friction sounds everywhere.

On April 18th, the leucocyte count showed 10,500 and the signs at the left base were less marked. The sputum was examined for tubercle bacilli with negative results. On April 25th, the leucocyte count showed 12,500. At this time the signs on both sides of the chest were about the same. There was a moderate dulness on percussion, but no flatness. Breathing sounds were heard all over the chest; the quality was in several places broncho-vesicular, but nowhere bronchial, and at no part of the chest were râles absent. At no time were there any signs of importance anteriorly. The stools continued frequent, ranging from three to eight a day, most of them containing mucus, the character varying with the food taken. The child became extremely anemic and wasted steadily. The intestinal



TEMPERATURE RANGE IN CASE REPORTED BY DR. HOLT.

condition seemed quite sufficient to explain the general symptoms, with the exception of the temperature and it was difficult to find any explanation for this and the enlarged spleen, which was satisfactory. There was very little cough, the respirations were slightly accelerated, but scarcely more than would be expected with the temperature. There was no point where the signs seemed sufficient to justify the introduction of a needle. During the last week of his illness, without any assignable cause, the temperature fell to nearly normal, and remained so until death. There was no displacement of the heart at any time, no vomiting, no cerebral symptoms. The weight fell from twenty-six to sixteen pounds.

AUTOPSY.—Body extremely emaciated. There were very extensive adhesions over the greater part of both lungs, so firm that the lung was torn in removing them from the chest, the pleural cavity being nearly obliterated. There were two small sacculated empyemas; the one on the right side being situated on the diaphragmatic surface of the lung near its anterior margin; the one on the left side being near the base of the lung and close to the spine. Each contained from one to two ounces of thick creamy pus which was not putrid. The upper lobe of the right side was partially consolidated, and on section it was grayish in color and showing a good deal of increase in the connective tissue of the lung; a very similar appearance on the left lower lobe, though not nearly so marked. The spleen was three times its normal size but in other respects normal. Throughout the colon were evidences of old inflammation,—very marked thickening and old ulcers undergoing cicatrization, together with some recent congestion.

The other organs were essentially normal.

The anatomical diagnosis was double sacculated empyema, persistent bronchopneumonia, chronic colitis.

REMARKS.—In reviewing the symptoms of this long and obscure case it seems, even in the light of the autopsy, difficult to explain the wide fluctuations in temperature. It seems to have been due to a combination of conditions. The pneumonic process was an acute pneumonia of the right side, which never entirely resolved, but was followed by interstitial pneumonia with an extension, about a month before death, to the left lung. The collection of pus on the diaphragmatic surface of the right lung, of course, could not be reached by a needle and

was not recognizable by any physical signs. The sacculated empyema on the left side situated against the spine was almost as inaccessible, as it scarcely came to the surface of the chest at all. The enlargement of the spleen seems to have been due to the venous congestion resulting from the interference with the pulmonary circulation.

Throughout the illness the child gave the impression of one who is very seriously ill. No treatment had any effect upon his symptoms, and while the physical signs varied somewhat from time to time, were so much alike upon both sides that it added greatly to the obscurity of the case, and it made one doubtful how much importance was to be attached to the rather feeble breathing and the very slight dulness which were the only persistent conditions. A certain amount of interstitial pneumonia, with pleuritic adhesions following an acute process, was expected, but the two pockets of pus which were discovered at the autopsy were a surprise.

DISCUSSION.

DR. CHAPIN.—I would like to report a case of persistent high temperature which was extraordinary in many respects. The child was observed by another physician for several weeks. It was then sent to me at the hospital, and I kept it for two months with the temperature going up regularly every fifth day. An examination of the organs and of the blood was very carefully made but no cause was found for the fever. Clinically it looked like malaria, but quinin, Fowler's solution and Warburg's tincture had no effect upon the temperature. Gradually the child recovered a normal condition.

DR. WILSON.—I should like to make a suggestion with reference to these cases of continued high temperature, that the examination should not be considered complete until a very careful note is made in regard to the heart. An adult case of this kind would suggest the presence of endocarditis, not necessarily malignant.

Prognosis of Diphtheria.—Rabot (*Bulletin Med.*) argues that the subcutaneous injection of saline solution in a child with diphtheria may throw light on the prognosis. If, after giving the injection, the child voids more urine without vomiting or diarrhea, the diphtheria will run a mild course, no matter how stormy the onset. But if the amount of urine is not increased, and there is vomiting and diarrhea, the prognosis is grave, as the toxins have affected the heart-fibres, and the organ is thus unable to respond to the action of the saline solution.—*Monthly Cyclopaedia.*

SUN PLAY-ROOMS ON CITY ROOFS.*

BY W. P. NORTHRUP, M.D.,

Professor of Pediatrics, New York University and Bellevue Hospital Medical College,
New York.

For fifteen years I have been eyeing the city roofs in New York, thinking how fine the air, how free from dust, how exposed to the sun and wondering why they have never been used for the children's play-houses.

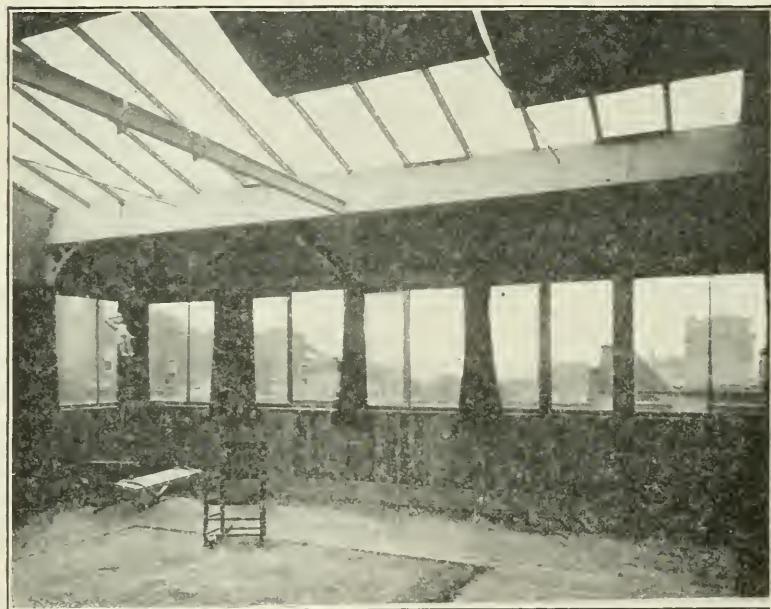
Recently an opportunity was given to me to carry out the idea. Not many months ago a delicate infant, who had been under the care of Dr. Rotch, came to the city to live. She was the only female child for some generations and had devoted parents and grandparents who wished to do everything to improve her vitality. People are building tall houses, are beautifying the sky line with towers and spires, and sending their first-born out for recreation in the crowded street, to mingle with unknown children and adults, their nurses hobnobbing with each other, and both with the policeman.

The house, of which I speak, faces west and is on one of the hills of Madison Avenue. Over the front roof there was no obstruction. There was suited to our purpose a space of 25x40 feet perfectly unobstructed and a grandfather's backing to develop an ideal roof sun play-room. To this problem were set the architects accustomed to similar propositions in the Presbyterian Hospital. The result was satisfactory. First two strong iron girders were laid from side wall to side wall. Upon these rested the weight of the room; then an iron frame was erected, the outlines of the room. The roof was iron with glass side-covering of sheet-iron with figured pattern resembling brick. Inside there was wainscoting of yellow pine; flooring was likewise of yellow pine. From floor to peak of roof was 16 feet. The interior of the room was 20x20 with a vestibule, the latter being over the stairway from the house below. Between the vestibule and large room there was a wicker gate, some heat coming

* Read before the American Pediatric Society, Niagara Falls, May 27, 1901.

up from the house through the stairway. In addition there was placed a well fenced-in gas-stove, which can be started at any time to take off the chill.

The room is lighted on three sides and by sky-light; on the north the wall is solid. Three sides are capable of being opened freely. The glass windows are constructed so that they can be swung to any angle and fastened according to the needs of wind or of bad weather. The roof-light can be cut off by curtains and the ventilators can be closed. Heating of the room



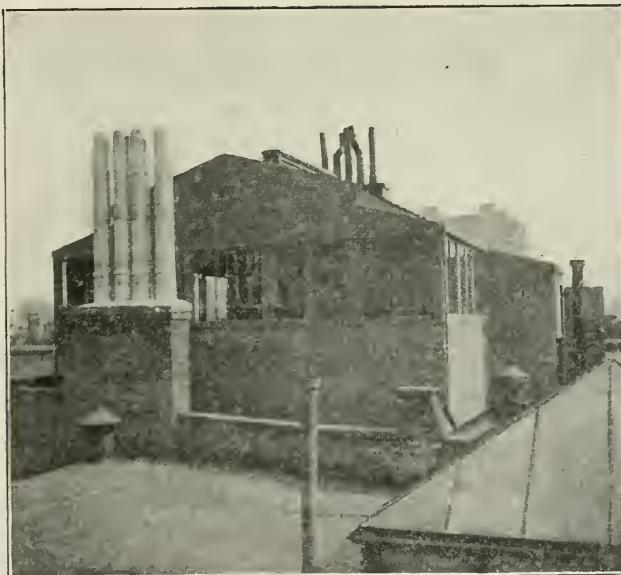
INTERIOR OF SUN PLAY-ROOM.

at all seasons is mostly by sun. In cold, bright, sunny days in winter there is no difficulty in keeping the room in fit condition for the child to play in; indeed no one who has not experienced the heat of a sun-room is prepared to realize its agreeableness.

Many New York families feel it necessary, under the advice of their physician, to send delicate children to southern climates during the dusty, windy month of March. This is a thing of luxury and it has its objections, for they are removed from the comforts of a home. This spot is above the noise, out of the

dust, free from contact of strangers and stragglers, away from the dangers of trolley-cars and automobiles, to say nothing of the perils of bicycles and roller-skaters.

Since this opportunity to build an ideal sun-room arose, I have had opportunities to develop other places less extensive for getting children out in the sun in winter weather. One patient has built a dining-room extension 30x20 feet. The roof of the dining-room extension is a platform, the floor of tile, and around this platform is a parapet three feet high. Such is this.



EXTERIOR OF SUN PLAY-ROOM.

favorable corner that this extension has an exposure getting sun on some part of it at nearly all hours of the day. On another occasion a sick child was believed to have tuberculosis and a temporary sun-room was built in an angle of walls with an awning stretched over it. This was temporary, easily constructed, but served its purpose.

If I have called to the minds of the American Pediatric Society, how the air and sun in crowded New York may be made to warm and cheer new corners for the use of growing

infants, my purpose is accomplished. Let us remember that the modern treatment of tuberculosis teaches us that for promoting active, complete metabolism, cool, fresh air is our best aid.

It is easy to think that, in case of needed rigorous isolation, a patient might easily be treated through any of the contagious diseases without contact with others. Not the least of its uses is the ability to treat whooping-cough in open air free of dust in the worst months of winter.

DISCUSSION.

DR. PUTNAM.—I am glad to find this plan carried out, for it is one I have always wished to see. There would be one difficulty in Boston; that the conductors that take the water from the roofs connect so that at the windows of the French roofs there is frequently a strong odor of sewer gas. One can manage the water conductors of his own house, but it is the conductors from his neighbor's house that would trouble him in Boston. The tall pipes shown in these illustrations are probably the ventilators of soil pipes, but I refer to the water conductors from the gutters of the house.

DR. NORTHRUP.—Our houses are not built in that way. We did fear the effect of gas from the furnace chimneys, but it has given us no trouble.

DR. ADAMS.—In the house next to mine in Washington the attic was converted into a conservatory and the idea struck me as it did Dr. Northrup, that many houses might be utilized with some contrivance of this sort for the use of young children. I would say, however, that the neighbors of these sun-rooms who have to stay in the city after the hot weather begins may suffer from them. The upper part of my house is uninhabitable at that time of the year because of the heat that comes from my neighbor's sun-parlor.

DR. WINTERS.—A friend of mine had some such room constructed on his house but found it impracticable to use it because the children had more colds than usual. At the Society for the Prevention of Cruelty to Children we have such a room properly protected as regards temperature and draughts, but we constantly have cases of tonsillitis that I attribute to the use of this play-room.

DR. ADAMS.—Would you not attribute that to faulty ventilation?

DR. WINTERS.—The ventilation is perfect in every way. It may perhaps be due to exercise or the asphalt floor.

DR. ROTCH.—How does Dr. Northrup keep this room warm?

DR. NORTHRUP.—It is not intended to keep it warm, but a gas-stove is kept there to use if necessary in excessively cold weather.

DR. GRIFFITH.—It seems to me that if one is going to build such a roof garden it should be arranged not for the month of March only. If you have a glass roof the garden will become unbearably hot later in the season. This heat cannot be satisfactorily controlled by the use of awnings and curtains. The roof should be opaque, and the windows on each side should extend from the eaves to the floor. This allows the sunshine to strike far into the room at every hour except high noon, and even then it enters well from the south. We have a satisfactory room at our Children's Hospital, and I think the same principle may be equally applied to private houses. This roof garden has been thoroughly tested and has been of the greatest service. All the sashes are removable for use in summer, while on the coldest winter days a small compartment at one end of the garden is heated. Into this a child can go for a time should it be feared that the cold is too great.

DR. NORTHRUP.—A very good roof garden and one which gave me confidence to go ahead with this enterprise is the roof of the Mothers' and Babies' Hospital. At the Foundling Hospital we have been acting on the principle of getting the children out of doors as much as possible, and they take on a new lease of life. They stand their illness much better, are more robust in general, and we have had fewer deaths from pneumonia.

A Case of Precocious Menstruation.—Lop reports (*Gazette des Hôpitaux*, Sept. 12, 1901) the case of a girl of six years, born at term of healthy parents. The child had good health till the age of three and one-half years, when she had a rather severe attack of typhoid fever, during the course of which there was a profuse intestinal hemorrhage. At five years she had scarlet fever. When five years and seven months old she had a decided genital hemorrhage, which lasted eight days. Her health remained good, and since that time she has menstruated regularly each month. Her general condition is good, though the face is a little pale. All the thoracic organs are in good condition. There is no albuminuria, diabetes, or hemophilia. The genital organs are well formed and of normal size. The mammary glands are small.—*Medical Record.*

THE MALNUTRITION OF TUBERCULOSIS.*

BY FLOYD M. CRANDALL, M.D.,

New York.

The discussion before the Section on Pediatrics is upon malnutrition in children, and to me has been assigned the malnutrition of tuberculosis. A discussion of the various other symptoms of that condition would be, therefore, out of place. I may, however, call attention to the fact that tuberculosis is one of the most protean of diseases in its manifestations. In some cases it begins abruptly with clearly defined local symptoms, as in tubercular pneumonia. As far as diagnosis is concerned, the malnutrition is then of minor importance; as far as the welfare of the child is concerned, it is of vital importance. Wasting and anemia are constant accompaniments of active tubercular processes. It is sufficient to say that the anemia accompanying tuberculosis is usually simple in character. That is, it is marked by diminution both of the red corpuscles and the hemoglobin and is not due to disease of the blood making organs. It is secondary, not primary. Occasionally, however, it approaches a chlorotic type, particularly in girls in later childhood.

It will be most profitable in the short time allotted to this subject, to consider those forms of concealed or generalized tuberculosis, so common in young children, in which local disease is found very late and sometimes not at all. These types have received much attention from recent writers. Jacobi refers to the "afebrile condition and chronic emaciation" of some cases. Holt classifies general tuberculosis, first, as those *cases resembling infantile marasmus*, and second, *cases in older children resembling a continued fever*. Comby refers to the tendency of tuberculosis to be generalized in infants and describes five clinical types in early childhood, the first of which he denominates as "apyretic tuberculosis," which runs the course of an ordinary athrepsia or dyspepsia, the symptoms being emaciation, vomiting, and diarrhea.

* Read before the Section on Pediatrics, the New York Academy of Medicine, December 12, 1901.

In watching cases of this character, the question sometimes arises in the mind as to whether there is such a thing as a pretubercular stage, as has been suggested. Children sometimes waste away and die without showing the signs of any organic lesion. They seem to be suffering from simple marasmus, but at the autopsy, death is found to have been due to tuberculosis. Holt asserts that he has seen at least a dozen such cases. Here, then, we find tubercular cases pursuing their full course without showing local evidence of tuberculosis. In other cases after the symptoms of marasmus have existed for a greater or less period, the signs of organic disease develop, usually in the lungs. It is in such cases especially that the theory of a pretubercular stage has been evolved. If by this term is meant a specific stage of tuberculosis marked by wasting and anemia, before the formation of tubercles, the theory is not tenable. If, however, a condition of anemia is meant which predisposes to tuberculosis, the term pretubercular anemia may be permissible, but it should be understood that it is no integral part of tuberculosis. It is nothing more than a state of impaired nutrition which renders the patient susceptible to any infectious disease. The so-called pretubercular stage is probably nothing else than the early stage of tuberculosis which has not been recognized. Even in adults it is not uncommon to find general infection and the disease under full headway when the lesions in the lungs are first detected.

Infancy and childhood are the periods in life in which tuberculosis tends most strongly to hide itself in deep-seated and inaccessible tissues. The deeper lymph nodes are the most common seat of concealed tuberculosis. Here the disease may go on producing its constitutional symptoms without giving any evidence upon which a diagnosis of the true underlying cause may be made. These deep-seated nodes may be seriously affected without involvement of the superficial nodes. On the other hand, enlargement of the superficial nodes, if fever, anemia, and other constitutional symptoms be absent, offers no evidence of the infection of the deeper nodes. But superficial adenitis, accompanied by anemia and fever, not otherwise explained, is very suspicious of tubercular involvement of the deep lymphatic structures.

Is the malnutrition of tuberculosis characteristic? Can the diagnosis of tuberculosis be made from the anemia and malnutri-

tion alone without the discovery of local lesions or of bacilli in the sputa? The anemia is certainly not characteristic. It is that which accompanies many other conditions of lowered vitality. Loss of weight is common but it does not necessarily progress uninterruptedly. There may be even gain of weight temporarily. If watched for some time, however, wasting will invariably be found. Progressive wasting, however, is common in many other conditions. Cachexia rarely occurs early enough or is sufficiently distinctive to be a symptom of value in making a diagnosis before other more positive symptoms have developed. In my experience, neither the classical scrofulous nor tubercular diathesis has been particularly common among tubercular children.

It is difficult for many practitioners to disassociate in their minds cough and tuberculosis. And yet cough is utterly lacking in many patients and does not develop until late in others. In many cases of glandular tuberculosis the lesions are so located as not to produce cough. Even after pulmonary invasion, the cough may be so slight for a time as to attract but little attention, and after repeated visits, the physician may fail to hear it. In involvement of the bronchial lymph nodes, the cough may be so paroxysmal as to mislead the physician. In older children suffering from the more chronic forms of consumption, similar to those in adults, the cough occasionally assumes such a paroxysmal character as to simulate pertussis. Fever is also absent in the early stages of many cases of the marasmic type. It may, in fact, never be a prominent symptom, and when it does occur it may be erroneously attributed to indigestion or taking cold. Marked febrile action may not occur until late in the disease, when local signs are also present. The indigestion, loss of appetite, diarrhea, and vomiting, so often seen in these cases, are by no means characteristic.

There is still another type of tuberculosis in children,—that which resembles typhoid or continued fever, in which there is often a preliminary stage of malnutrition without diagnostic symptoms. This apyretic stage may continue for several weeks, to be followed by a stage of low, irregular fever, which may run for two or three weeks or longer, before any local symptoms develop. These are usually pulmonary. In this type wasting in the first stage, and wasting and fever in the second stage are symptoms never absent. Cases of this char-

acter form some of the most difficult and trying problems, which are presented to the practitioner. Unfortunately even after pulmonary signs have developed, it is not possible to be too dogmatic in one's statements, for a marasmic child may contract a simple bronchopneumonia and die after passing through a very similar series of symptoms. Consolidation in such cases is often so slow to develop that there may be a febrile stage of considerable duration before positive signs can be elicited. Autopsy may show such a case free from tuberculosis, while another running a very similar course may show abundant evidence of it.

I am aware that I am not adding much light to the subject but, rather, perhaps, discouragement. The fault, however, is not mine; it lies rather with the conditions, for the malnutrition, both of the earlier and later stages of tuberculosis, has little about it by which a diagnosis can be made. Still it must be said that while these symptoms are none of them characteristic, taken together they form a clinical history which should put a practitioner upon his guard and should make him very careful in his prognosis. The question has been well summarized by Holt in the following words: "Early wasting without adequate cause followed by gradual development of low fever, and finally the appearance of signs of subacute bronchopneumonia, form the most characteristic features of general tuberculosis in early infancy. Yet all these symptoms are occasionally met with in cases in which the autopsy shows none of the lesions of tuberculosis." Anemia and wasting in a young child in which thorough examination reveals no adequate cause should always arouse the suspicion of incipient tuberculosis.

I have thus far referred to infants and young children only, but desire to add a word regarding older children and adolescents, in whom anemia and malnutrition should always receive prompt attention. Tuberculosis rarely develops at this age in the well nourished and vigorous. In families with the tubercular tendency, the children between the ages of fourteen and twenty should receive particular care, and the first appearance of anemia and impaired nutrition should receive prompt treatment. I have come to regard chlorosis as a much more grave condition than many seem to do, though I think I have had my share of brilliant results in its treatment. Many cases improve promptly and continue in good health, while others

continue to be more or less anemic and relapse easily. Where there is a family history of tuberculosis, chlorotics show a peculiar susceptibility to tubercular invasion. Rachford, who has made considerable study of this subject, asserts that the menstrual function is established somewhat earlier in girls with a tubercular family history than in those without such a history; that a scant and pale menstrual flow, followed by a leucorrhæal discharge is very suspicious of concealed tuberculosis. Certain it is that a chlorotic girl is a candidate for almost any infectious or wasting disease, of which tuberculosis is first and foremost. When to this is added inherited tubercular tendency, her danger is very great.

The thoughts which I have thus briefly presented may be thus summarized:

1. Wasting, anemia, and other evidences of malnutrition are constant accompaniments of tuberculosis in children.
2. These symptoms may occur in infants long before local disease can be detected and occasionally no local signs whatever are manifest before death.
3. In infants, tuberculosis shows a special tendency to be disseminated or to conceal itself in the deep tissues, as the lymph nodes. The disease may then run a course identical with simple marasmus.
4. In some cases a period of anemia and wasting is followed by a stage of irregular fever, after which local lesions appear, usually in the lungs.
5. In other cases tuberculosis in children begins with well-marked local manifestations, particularly pneumonia. In these, evidences of malnutrition appear promptly and are usually progressive.
6. The anemia of tuberculosis, whether it appears before or after the occurrence of other symptoms, is a usually simple anemia and presents nothing characteristic.
7. A diagnosis of tuberculosis cannot be made alone from the character of the anemia or the malnutrition. However, persistent and increasing malnutrition in a child without discoverable cause is always suggestive of tuberculosis.
8. Anemia in adolescents should receive prompt and active attention, for it vastly increases the danger of tubercular invasion, which is particularly common at that period of life.

Clinical Memoranda.

A CASE OF ACUTE ARTICULAR RHEUMATISM IN AN INFANT TWENTY-SEVEN DAYS OLD.

BY PAUL J. BARCUS, M.D.,

Crawfordsville, Ind.

Professor of Diseases of Children, Central College of Physicians and Surgeons,
Indianapolis, Ind.

I saw this case through the courtesy of Dr. J. S. Niven, of Crawfordsville, Ind. A female infant was born September 1, 1891, the second child of healthy parents. It weighed seven pounds, was perfectly healthy, and continued so, although artificially fed, until September 27th, when the mother noticed that its left arm "seemed paralyzed" and "was painful if she moved it." She did not call the doctor until the 29th, when he found the infant's temperature (groin) 99.5° and pulse 120. The left elbow was much swollen, red and very sensitive. The child was taking nourishment well and there was no gastrointestinal disturbances.

September 30th.—Left elbow unchanged, and left wrist hot, swollen, red and sensitive; temperature and pulse the same.

October 1st.—Left elbow unchanged, wrist more swollen, and left knee and ankle involved; temperature, 102° ; pulse, 130.

October 2d.—Right knee and ankle also involved; temperature, 102° ; pulse, 130. Taking nourishment well, but restless and very difficult to handle because of the pain on moving any of the affected joints; profuse sour perspiration.

October 3d.—But slight change in joints; temperature, 101° ; pulse, 125.

October 4th, 5th, 6th and 7th.—Symptoms steadily abating and temperature falling.

October 8th.—Right elbow involved; temperature, 101.5° ; pulse, 125.

October 9th and 10th.—Abating; temperature, 98.6° ; pulse, 120.

October 11th.—Right wrist affected; temperature, 102° ; pulse, 150.

October 12th and 13th.—All joints subsiding except last one; temperature, 101° ; pulse, 150.

The temperature was normal on the 16th, but pulse remained at 150, and was so on the 20th, when all the joints had subsided except the left elbow, which remained sensitive for two or three days longer.

November 13th.—The right knee was again swollen, red and sensitive, but subsided in a week with no other joint involved.

The treatment was essentially the salicylate and bicarbonate of soda, a grain of each every three hours to three times a day. They were continued for some time after the first attack and were resumed on the second attack. The patient bore these doses with no disturbance of the stomach whatever.

November 27th.—The infant was gaining in weight but not rapidly, and was entirely free from all rheumatic affection of the joints. The heart showed nothing abnormal on auscultation, but was beating at the rate of 125 with the apex slightly displaced.

When the mother was five months pregnant she had what the doctor called muscular rheumatism of the post-cervical muscles. It lasted for one week and there was no fever and no joint affection. There was no history of chorea or tonsillitis in the parents and no pus focus in the infant that could have led to an arthritis; moreover, there was no tendency to suppuration of the affected joints.

The striking features of the case were the great tolerance of the stomach for the medicine and the remarkable regularity of all symptoms that go to make a classic case of acute articular rheumatism—the character of and successive joint affection, the sour sweat, the characteristic rheumatic temperature, the control of the symptoms by the salicylate and, to make the case complete, probable heart complication following.

Infant Hygiene in Paris.—The Paris prefect of police has had the walls placarded with a circular calling attention to measures of infant hygiene during the heated term, warning not to wean infants, nor feed them from bottles with tubes, to boil all the bottles, etc., and protect them from dust, and to refrain from giving fruit to children under three, and over this age only in moderate amounts, and cooked, and finally, at the first symptom of disturbance on the part of the child, to summon a physician.—*Journal of the American Medical Association.*

ARCHIVES OF PEDIATRICS.

JANUARY, 1902.

EDITED BY

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

THE TREATMENT OF PNEUMONIA.

Much has been said during recent years upon the treatment of pneumonia in children, and among pediatric specialists there is less divergence of opinion regarding it than upon the treatment of most other diseases. The practice advised by them differs radically, however, from that adopted by large numbers of general practitioners. The tendency of treatment by men of broadest experience is toward simplicity and the use of few drugs. The prevailing tendency of the general practitioner is toward complexity and the use of much medicine.

In the wards of well-conducted hospitals, under practitioners of extensive experience, one finds the chest protected by flannel or a cotton jacket loosely applied, with perhaps the oc-

casional use of a mustard paste. The desire is to embarrass as little as possible the respiration, which is always labored in pneumonia. In private practice the chest is too often loaded by a heavy poultice, the weight of which must be lifted from thirty to fifty times or more a minute by respiratory muscles already over-burdened.

In the one case precaution is taken that the fever shall not be added to by a steaming poultice, excessive clothing and an air-tight and overheated room. In the other the necessary fever of the disease is increased by the local treatment and the fears of the mother lest the child take "cold."

In the one case, the fact being recognized that the disease is one marked by prostration, depression, and exhaustion, the strength is conserved in every way. The child is disturbed as little as possible, and the strength is not unnecessarily wasted. Nauseating medicines are avoided, and nourishment is looked upon as of vital importance. In the other case, the child is not given sufficient rest. The temperature is taken too often; something is being constantly done; doses are unnecessarily multiplied. They are frequently given with a struggle, and, if unpalatable, they disturb the stomach and destroy the already impaired appetite, and thus take away one great source of reliance—adequate nourishment.

The heavy poultices, at first hot and steaming but soon cold and soggy, the excessive clothing, the frequent disturbance of the child in over-zealous efforts to cure, the nauseating drugs forced down against the protest of a revolting stomach—all these, notwithstanding their discomforts, might be tolerated if they gave better results and saved more lives than do other methods. When we know that instead of saving more lives, they actually save less than do the simpler methods, what can be said regarding persisting in such treatment?

The picture here drawn is not an exaggerated one. It is of too common occurrence. Over-heating of the patient, over-giving of drugs and too frequent disturbance are errors

very commonly seen by consultants. Amonia, ipecac, squills, and paregoric are largely given to children ill with pneumonia. Frequently several of these are combined, with licorice and syrup as a vehicle. Some of these mixtures could not be more evilly effective were it deliberately planned to destroy the appetite and ruin the digestion. There is no excuse for such combinations when we know that they have so little effect over pneumonic processes.

Fever is a necessary feature of pneumonia, and unless it ranges abnormally high need cause no alarm. In the ordinary type of the disease it is worse than futile to try to force it down by the use of coal-tar antipyretics. The child in too many cases becomes cyanotic, with embarrassed circulation and respiration. The repeated administration of smaller doses results in increasing the depression natural to the disease.

If the practitioner, wedded to these ancient methods of treatment, could realize how much better results he would obtain, and how much more comfortable his little patients would be with less heroic and complex treatment, he would at once abandon it and adopt more rational methods.

SUN-ROOMS.

The utilizing of the roofs of city houses has been a question of desultory discussion for many years. Schemes have been proposed for the making of roof-gardens for the summer and sun-parlors for the winter. While the question has been largely one of academic discussion, in a few instances roof-gardens and sun-parlors have actually been built. Sun-rooms have been built upon several hospitals and have usually proved highly satisfactory.

The scheme for building upon the roof a room surrounded by glass as a play-ground for children is certainly an excellent one. The detailed account of the construction of such a room, given in the present number by Dr. Northrup, is most interest-

ing. It is an ample demonstration of the feasibility of such a project. The question of exercise for city children in winter is a very difficult one. Even those who are near the public parks, in reaching them must necessarily come in contact with all sorts and conditions of men, women, and children. Ample space to run and play in the air free from the drawbacks found in the streets and public places is a consummation much to be desired.

The expense necessarily limits such luxury to the well-to-do. In many instances, also, the surroundings would render inadvisable the building of such a room, for the chimneys and ventilating pipes of the neighboring buildings might render it impossible to secure uncontaminated air. In New York, sun-rooms on private houses should be built with reference to use almost solely in cold weather. Families able to assume such expense will seek the country in hot weather. If there are children, particularly, they will go early and return late. It is, moreover, doubtful if such a room could be built on a roof that would be safe to send children into on the hot days of the New York summer. An ample return, however, would be secured for the use to which it would be put between October and May.

Sarcoma of the Uterus in Infancy.—As an instructive example of the tumors to be considered in and about the uterus in infancy, J. Lorthioir (*Journal de Chir.*, August and September, 1901) reports one of sarcoma in a child three years old. In December, 1900, a small fibrous mass apparently fibroma was removed from the cervix. In March a partial vaginal hysterectomy was done by morcellement. In June a total ablation of the stump of the uterus and appendages was done by the abdominal route, for an enormous recurrence which filled the true pelvis. Death occurred by shock. The autopsy showed involvement of the mesenteric glands. Microscopically the first tumor removed was fibrous and all the tissue ablated at the other operations was more or less sarcomatous with small round cells.—*Medical News.*

Bibliography.

The Baby : His Care and Training. By Marianna Wheeler, Superintendent of the Babies' Hospital of New York since 1891, Graduate of the Training Schools of the New York Hospital and Sloane Maternity Hospital. Illustrated. New York: Harper & Brothers. 1901. Pp. 189. \$1.00.

If numbers were the only requisite, the works extant on the care and management of infants would be wholly adequate. There are, however, other important requisites in which the books thus far produced have been more or less lacking. There has been no ideal book for the use of mothers, but Miss Wheeler has come very near to that result. Her years of experience in the Babies' Hospital have particularly fitted her for this task. Her book is eminently practical and is based upon the results of her own long and varied experience. The advice given is that which can be carried into actual effect. She tells mothers to do only the things she knows they can do.

A large variety of subjects are taken up bearing on the babies' clothing, sleep, bathing, exercise, feeding, and general care. The suggestions regarding the nursery and the duties belonging strictly to the nurse could hardly be improved upon. The practitioner who has had experience with this class of books will probably turn first to the chapter on feeding, for it is here and in the chapters on home management of disease that the most serious errors have commonly been made. In the present case the various details regarding the care and management of the food and methods of feeding are very good. The use of the book will save the physician the necessity of making many explanations he would otherwise be compelled to make. Several formulas are given, but they are not obtrusive, and the ages for which they are supposed to be adapted are not mentioned. This is an important point, and is one upon which most other books of this character have been most in error.

In the chapters upon disease, and the more strictly medical subjects, the author tells what the mother may legitimately know, and, in fact, will be better for knowing. The ways in which the contagious diseases are spread are explained and methods for prevention are briefly described. Upon treatment the domain of the physician is encroached upon very little, if at all. The chapter on emergencies is a good one. The directions as to what shall be done until the doctor arrives are judicious and do not overstep proper bounds. The book might have profitably been made larger and more extensive. It is a safe book to place in the hands of mothers, a reliable book, and a good book.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN—
LONDON.

*Meeting of October 18, 1901, at the Hospital for Sick Children,
Great Ormond Street, London.*

DR. D. B. LEES, CHAIRMAN.

DR. C. H. FENNEL showed, for Dr. Garrod, a child aged 5 3-12 years, who was stiff and awkward in his movements. He had now the usual signs of pyramidal tract degeneration, coupled with an ataxic gait. The condition seemed to be one of Little's disease involving the cerebellar as well as the cerebral cortex. The possibility of a syphilitic origin was strongly suggested by the existence of choroido retinitis.

MR. STANSFIELD COLLIER showed a baby aged three months, the subject of

CONGENITAL DEFORMITY

of the left shoulder, girdle and spine, of the type first described by Willett and Walsham. He also exhibited a specimen of bone removed from a similar case. The triangular plate of bone had connected the third cervical vertebrae with the vertebral border of the scapula.

MR. COLLIER also demonstrated a case of

SEPARATION OF THE EPIPHYES

of the femoral heads, in which the appearances resembled those of congenital dislocation.

DR. D. B. LEES showed a boy nine years old, admitted in February, 1900, with

RHEUMATISM WITH A GREATLY DILATED HEART

and thrombosis of the brachial and jugular veins on the right side. The right hand and arm were swollen, and the face puffy. He improved under treatment and was discharged. Subsequently he was again admitted with general dropsy, which 4 minim doses of digitalis every six hours failed to relieve, but which began to improve directly the dose was raised from 4 minims to 8. The dropsy completely disappeared and he was again discharged. The heart is extremely

large, extending three finger-breadths to the right of the sternum in the fourth space, and five finger-breadths to the left of the nipple-line with apical presystolic and systolic murmurs. But at present there is no dropsy and there has been no recurrence of the thrombosis. DR. LEES also showed

A CASE OF ARSENICAL NEURITIS

following the administration of liquor arsenicalis for the cure of chorea. The patient, a girl of eight years, was treated by a medical man with 15 minim doses of liquor arsenicalis, three times a day, continued for five weeks. On admission there was complete paralysis of the anterior tibial muscles in both legs, with absent knee-jerks, also some weakness of the extensors of both wrists, and wasting of the thenar muscles on both sides. Pigmentation was marked on the abdomen, and present in both axillæ. Dr. Lees also showed a boy nine years of age with

VERY LARGE RHEUMATIC NODULES.

The other rheumatic manifestations were slight.

DR. ROBERT HUTCHISON showed a child of two years, who had suffered from

DOUBLE FACIAL PALSY,

in consequence of middle-ear disease. Both the mastoids were operated upon by Mr. Ballance and complete recovery resulted.

DR. HUTCHISON also showed two cases

EXHIBITING CONGENITAL ABNORMALITIES.

The first, a boy of four weeks, showed (a) supernumerary digits and shortness of all the limbs; (b) abnormalities of the feet; (c) absence of the gums, and (d) congenital disease of the heart. The second, a child of sixteen months, showed (a) diffuse lipomatous nevus, with pigmentation; (b) a papilloma of the tongue, and (c) congenital cataract. Dr. Sutherland said that he had lately seen a case almost identical with Dr. Hutchison's first patient.

DR. THEODORE FISHER showed two specimens of

CONGENITAL DISEASE OF THE HEART.

viz.: Mitral stenosis from a child aged fifteen months, and aortic stenosis from a child aged four and a half months.

DR. WAYLAND C. CHAFFEY read a paper upon

A CASE OF DIFFUSE PSEUDO-LYMPHOMA

terminating in pernicious anemia. The facts were as follows: A female child, aged eleven months, was recently admitted to the Children's Hospital, Brighton, suffering from rickets, enlarged liver and spleen, and marked anemia. The examination of the blood pointed to grave destructive changes taking place, such as are found in the pernicious variety. This was confirmed after death by the Prussian blue reaction in liver, spleen and kidneys. The left kidney was also found to be the seat of a diffuse small-celled infiltration, so that it was enlarged and somewhat resembled large, white kidney. The liver and spleen were similarly affected as shown by microscopic sections of these organs. Dr. Chaffey regarded the case as one of pernicious anemia, secondary to pseudo-leukemia, but the case did not come under his observation till a late stage.

Mouth Organisms of Infants.—Although the microbial flora normally present in the buccal cavity of adults has been extensively investigated, comparatively little if any research has been undertaken along these lines with respect to nursing infants. The subject is of importance in relation to the local and general pathological conditions often present. Xavier Lewkowicz (*Archiv. de med. exp.*, September, 1901) reports the examination along this line of five infants; three of these were healthy so far as known. One three months of age was suffering from chronic enteritis. The fifth (three months of age) was dead of diphtheria, the material for examination having been collected twenty-four hours after death. His work comprised the employment of both aerobic and anaerobic methods. The bacterial find was greatly diversified. At birth the mouth is practically sterile. Very soon thereafter the streptococcus becomes the predominating organism. A non-pathogenic pneumococcus is also constantly found. In no case was the staphylococcus aureus present. Among the bacilli present the b. acidophilus predominated. As age advances anaerobic species make their appearance. Among these the b. bifidus communis and the streptococcus anaerobius micros. were the ones most often found. Anaerobes are able to live in the buccal cavity in the numerous furrows of the mucous membrane because of the presence of aerobic species. These materially reduce the amount of oxygen present in such location. The leptothrix buccalis was also found. In the cases of diphtheria and chronic enteritis the number of normal organisms present was not materially altered.—*Medical News*.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, November 12, 1901.

DR. THOMPSON S. WESTCOTT, PRESIDENT.

DR. JAMES K. YOUNG exhibited a patient on whom he had done

ASTRAGALECTOMY FOR INVETERATE CLUB-FOOT.

He stated that of all the operative procedures employed in the treatment of inveterate club-foot, of which there are now a score or more, there is none so satisfactory as the removal of the astragulus. Before the introduction of this method of operating, surgeons were content in severe cases with results which to-day would not be considered satisfactory.

Time for operation.—This operation should not be performed before seven years of age, unless the bone is so greatly deformed that no other operation would be of any service earlier. If patients are treated from birth by mechanical appliances the deformity will be overcome in the majority of cases by the time the child begins to walk, or, at most, multiple tenotomies will correct the deformity.

Selection of cases.—The use of skiagraphy is the best means of determining the necessity for this operation. If the foot is very resistant and the skiograph shows that the astragulus could not be pushed between the malleoli, the case is a suitable one for the operation. The removal of the astragulus will usually accomplish everything that is desired, but tenotomy of the tendo Achilles will be necessary in exceptional cases. It is at times necessary to remove portions of the other bones. The section of other bones should be avoided if possible because of the opening of the cancellous tissue and the increased danger of infection.

Technique.—It is an advantage to use the Esmarch tourniquet without the use of the bandage to control the hemorrhage and to render the search for the articulations easier. The disadvantages of using the rubber bandages are not great, and the hemorrhage afterward is not greatly increased. The incision which Dr. Young prefers is the curvilinear one, beginning above the peroneal tendon, below the external malleolus and curving downward and backward to the anterior tibial tendon. This

gives a larger exposure to the joint and facilitates the succeeding stages of the operation. Great care should be exercised in dividing the structures on the inner side of the bone for fear of wounding the posterior tibial artery. Catgut drainage is used and the wound is closed with catgut sutures and the foot retained in a plaster-of-Paris bandage for from three to five weeks.

Results.—These are very satisfactory, and motion is almost perfect. There is always a shortening of from $\frac{1}{2}$ to $\frac{3}{4}$ of an inch, but when the operation is performed for double club-foot, inequality of the limbs is not present, and the patient walks better than after operation for single club-foot.

DR. HAND in discussing the case asked whether the operation was done in this case for talipes valgus? He had assisted Dr. Ashhurst some years before in an operation for talipes valgus after this method. This was the first time it had ever been done in this city, and the result on the patient was good. He was not aware whether the operation was commonly used for this purpose.

DR. YOUNG in reply stated that the operation was rarely used for valgus, though not uncommonly employed for talipes varus. For instance, he had himself done the operation as many as four times in one week. This was, of course, an exceptional number, and this frequency of using the operative procedure was due to chance; but it is an illustration of the fact that operation is not uncommon. It has been said that there is no case of club-foot which cannot be cured. This Dr. Young believed to be true if severe bone-cutting operations are carried out.

DR. JOHN H. JOPSON reported 2 cases of

URETHROTOMY FOR IMPACTED CALCULUS

in young male children. The first case was aged three years. After suffering from retention for twenty-eight hours it was brought into the Children's Hospital with a ruptured urethra and extensive extravasation of urine. The stone was found lodged in the bulbous portion of the urethra and was removed after perineal urethrotomy. The child did very nicely until the third day, when he developed symptoms resembling scarlet fever—vomiting, rash, high fever, etc.—and died six days later of heart failure. It was possible that the condition may have been one of septic intoxication. The second case, a boy three and a half years old, was also seen at the Children's Hospital

after a period of retention lasting for twenty-four hours. When catheterized a stone was detected in the bulbous urethra. Urethrotomy was also necessary in this case. There was a satisfactory recovery. Both stones were small of size; one rough, the other oval and smooth; both uric acid calculi. In one case straining at urination and stool was observed for two weeks before obstruction developed. In the second case there were no symptoms preceding retention. The uncertainty of diagnosis of calculus in children, before sounding the bladder is undertaken, is well known, but the possibility of the presence of a stone in cases of vesical irritability should always be borne in mind. Impacted calculus is the most common cause of urethral obstruction in children. Measures for the removal of impacted calculus in children are meatotomy and extraction by forceps in the anterior urethra and attempts to thrust it backward into the bladder and then to crush it when lodged in the deep urethra. Failure of these measures usually necessitates urethrotomy.

VACCINATION.

There was a symposium on vaccination with the following papers:

DR. FREDERICK A. PACKARD: "The Technique of Vaccination."

DR. MORRIS LEWIS: "What Constitutes Successful Vaccination?"

DR. J. F. WALLIS exhibited by invitation wax models illustrating stages of vaccination and the different complications of the sore, the models having been made by himself and DR. JAY F. SCHAMBERG.

DR. ARTHUR VAN HARLINGEN: "Vaccination in Relation to Skin Diseases and Eruptions Following Vaccination." These papers were followed by a general discussion.

DR. ELGIN spoke on the duality or singleness of small-pox and vaccination, and gave a brief historical sketch of the work that had been done on this question, concluding with a reference to the work of Surgeon-Major King who had vaccinated 350,000 persons with lymph derived from cattle which he had inoculated with small-pox. DR. Elgin considered that the two diseases are entirely the same, vaccination being small-pox modified by passage through resistant animals. The chief difficulty in the

way of this theory, the only difficulty of consequence, is that cow-pox has never been transferred back into small-pox. Generalized vaccinia is the only condition in which there seems to be a distinct possibility that such a re-transference has taken place, but this is not contagious. There is a good deal of discussion whether such a thing as actual generalized vaccinia ever really occurs, but he believes that it does occur, and referred to cases which he had seen in which apparently indisputable generalized vaccinia had been observed.

DR. CLEEMANN thought that there should be strong regulations enforcing re-vaccination. His success in re-vaccination has been 50 per cent. to 60 per cent. of those vaccinated. Of his primary vaccinations in 44 children, the vaccination failed in only one instance. This child was vaccinated three times before it took, and hence there appeared a special resistance to vaccination in this case.

DR. STENGEL stated the following figures obtained in re-vaccination:

Positive results (first attempt),	-	-	-	-	-	78
Negative once, then positive,	-	-	-	-	-	1
Negative once,	-	-	-	-	-	13
Negative twice,	-	-	-	-	-	16
Negative once, then doubtful,	-	-	-	-	-	1
Negative three times,	-	-	-	-	-	3
Doubtful,	-	-	-	-	-	20

The term "doubtful" was used to indicate that the result was not known. Cases which looked doubtful were always re-vaccinated, and probably, therefore, a number of those given in the table as negative were really takes; but the success was not sufficiently evident to allow of their being included among those considered positive. There were then 132 cases, and the successful results constituted 71 per cent., and all but one of these were successful on the first inoculation. All but two of these persons were known to have been vaccinated before. He observed one instance of raspberry sore, the only one he had seen this year. As most of the cases marked "doubtful" were done so recently that no report has been given, it is not likely that the percentage of successes will exceed that which the figures now indicate.

DR. MEIGS stated that the point that interested him most was: how often should re-vaccination be practiced? He is a firm believer in the protective power of vaccination, and considers it very unwise to do anything that could disturb the faith of the public in it. He read extracts from Seaton showing this author's firm belief that more than one re-vaccination is unnecessary, and stated his own belief that frequent re-vaccination is unnecessary. He considers that there is no evidence to show that it is of any use. He believes that the re-vaccination pock does not resemble the primary pock once in a 100 times. It is impossible in most cases to produce a typical vaccination after the patient has been once successfully vaccinated. There is a good deal of reason to believe that a good primary vaccination during infancy, and a good re-vaccination after puberty afford the best possible protection against small-pox. It may be well during epidemics of small-pox to vaccinate again those who have not been vaccinated for many years, but it is certain that advice from physicians that vaccination should be practiced, very often will injure the cause of vaccination, and this is much to be deplored, for it is the most certain and satisfactory preventive for a disease that is yet known to science. To advise people to be vaccinated every two years is most unreasonable. It is a great pity that some conclusion cannot be reached in regard to how often persons should be vaccinated during an ordinary lifetime; the present uncertainty of physicians in regard to this question hurts the cause of vaccination.

DR. SCOTT referred to the fact that the British Small-Pox Commission concluded that re-vaccination should be practiced every five years, and that immunity from vaccination is probably not over five years' duration. He considered that if we believe in vaccination at all, we must believe that people who can be successfully vaccinated are in danger of taking small-pox. One fact which had interested him greatly, and which he had not heard referred to in the discussion, was that the scar left after the use of glycerinized lymph is wholly different from the usual old-fashioned typical scar of vaccination; indeed, there is often after the removal of the scab, practically no scar at all, and usually no depression. Yet the pock developed after the use of the lymph is perfectly typical, and there is every reason to believe that this lymph is quite as potent as the older virus. The difference in the scar is probably due to the fact that in

using glycerinized lymph we have a purer product, which causes less reaction.

DR. LEIDY, in referring to the question of the frequency with which a person can be successfully vaccinated, stated that, in 1897, after being exposed to small-pox, he had been vaccinated, and it took typically. In 1900 he was vaccinated once more, and there was again a satisfactory take. During this fall he had once more been vaccinated, but without success. The previous results, however, show that it is quite possible for a person to have two satisfactory attacks of vaccinia within three years.

DR. ELGIN stated that within three years he had come in contact with about 300 persons who were engaged in the preparation of vaccine virus and numerous accidental inoculations had been seen. For instance, he knew of a number of cases in which, within two weeks or so after beginning work in the laboratory, an individual would present himself with all his fingers covered with vaccine vesicles. He has also seen typical vesicles on the lips, even on the middle of the tongue, and in various other situations from accidental inoculation. These persons may show, and in several instances have shown in his experience, new typical vesicles on their fingers or elsewhere within four weeks after the primary sores had subsided. He has repeatedly seen such persons show typical vaccinia again within twelve months. As to immunity to vaccinia, he considers every individual a law unto himself. Vaccinia may protect against vaccinia for a month, or it may protect for a lifetime. An example of the importance of not being content to believe that a person is immune to vaccinia, and that he should persist in being vaccinated so long as he is in danger of taking small-pox whether the vaccination is successful or not, was shown by the case of a physician connected with the Health Board in Manila, which he cited. The physicians on this Board had been in the habit of vaccinating themselves once every month. The special physician referred to had finally omitted this practice since for a long time vaccination had been unsuccessful. Some months after he had given up the attempt to vaccinate himself he took small-pox and died of the disease. It is probable that if this man had persisted in vaccinating himself he would ultimately have succeeded, and would have more or less protected himself against the onset of small-pox. As to the constant protection

which vaccination exercises against small-pox, he referred to the experience of the last twenty months in Chicago, which showed that the earliest case of small-pox occurring after vaccination appeared sixteen years after the patient had been vaccinated.

DR. CODMAN, in referring to the use of various preparations of vaccine, stated that when using the glycerinized lymph he had had only one take in three. He then tried the dry points and was successful in only one case in five. The glycerinized points in capsules were then tried and nearly all took, but in very severe form, the local reaction being so severe as to make him suspect that this vaccine carried some other infection with it. As to the scar left after the use of the ordinary tubes, he had regularly observed practically no scar; after the use of points the scar was more marked, and after the use of the points in capsules (as was to be expected from the greater infiltration and the more frequent cellulitis and marked general symptoms) there was often a severe scar. He had heard a number of physicians recommend the use of bichloride solution in sterilizing the arm before vaccination. It is to be anticipated that this would prevent success in a number of instances, and he had demonstrated this to his own satisfaction, and had wholly given up the use of bichloride, because it evidently interfered with the success of the vaccination.

DR. D. J. M. MILLER considered that as re-vaccination seems to be successful in such a very large percentage of cases, a successful re-vaccination cannot be a sign of susceptibility to small-pox. Dr. Lewis had had 85 per cent. of successes in re-vaccination; if this proved that all persons who could be successfully re-vaccinated were actually susceptible to small-pox, we could with reason expect the present epidemic of small-pox to be much more widespread than it is. As an instance of the fact that vaccination does not always protect against vaccinia for any considerable period of time, he referred to the case of a woman whom he had vaccinated, and who, on the thirteenth day after her vaccination, accidentally scratched her arm just below the sore. In some way some of the discharge from the sore had been inoculated into this scratch and a typical vaccination sore developed in due time: *i. e.*, typical for a secondary vaccination.

DR. WALLIS stated that in primary vaccination he had obtained about 99 per cent. of successful results, using a method

that, so far as he knew, was originated by him. He always uses the tubes of glycerinized vaccine. He believes that the cloudy mass containing epithelial cells, detritus, etc., is perhaps more active than the clear fluid; he consequently breaks the tubes in half, and in this way is able to empty them more completely, and thereby gets more satisfactory results. Still better results were obtained by using two tubes of vaccine, probably because an occasional tube is inert; therefore, for economy's sake, but in order to use some vaccine from each of two tubes, he is in the habit of breaking two tubes in half, and uses the vaccine from each half tube. In vaccinating, after adopting this last-mentioned method, he obtained very striking success. In all, including both secondary and primary vaccinations, his success has been about 85 per cent. The greater part of his secondary vaccinations were carried out in children, and in most of them he obtained typical sores. He considers that the statement that secondary vaccinations, as a rule, do not show typical sores, is incorrect. To emphasize this view he directed attention to the models which he had presented, which were all from cases of secondary vaccinations, and which, nevertheless, showed typical sores.

DR. MCKEE asked Dr. Elgin what microscopic or bacteriologic studies were pursued in the preparation of the virus?

DR. ELGIN replied that the virus when obtained from the animal is placed in cold storage for about thirty days. As it comes from the animal it contains from 30,000 to 100,000 organisms to the cubic centimeter, part of them pathogenic, part of them not. When the virus is placed in cold storage the number of organisms constantly diminishes, and at the end of about thirty days there are practically no pathogenic forms left. When plate cultures show that the pathogenic forms have disappeared the virus is placed on the market.

DR. MARCY said that he had vaccinated three persons who had previously had small-pox, and of these three showed successful takes. He always uses the tubes of glycerinized vaccine, and in primary vaccination has had about 80 per cent. of successful results, the sore running a typical course. In re-vaccinations he has had almost 70 per cent. of successful results, but the sore was usually not typical. He had recently observed many severe lesions, particularly in re-vaccinations, and he wondered if the virus was all that it should be, and thought

that perhaps the recent demand for virus had been so great that the manufacturers may have put on the market virus that had not been kept sufficiently long in contact with the glycerine to have destroyed the other pathogenic organisms.

DR. WALLIS stated that his experience had been that people who have had small-pox frequently take vaccinia. He had vaccinated a number of persons who had had small-pox, and had very often been successful. One of these persons had had small-pox twice. In no instance was vaccination successful in an individual who had had variola within ten years.

DR. ESHNER stated that in discussing the question of immunity to small-pox and immunity to vaccinia, as of immunity in general, it should be borne in mind that this is always relative only and never absolute; so that if a vaccinated person be exposed to small-pox, or be subjected to vaccination, the result will depend not alone upon the individual susceptibility, but also upon the virulence of the hypothetic micro-organisms of the respective infections. As to the frequency with which vaccination should be practiced, he believes that this should be done in the first year of life, again at about puberty, and finally at about the age of thirty-five. Additionally, in times of epidemic it would be wise to vaccinate. In this way the individual can be rendered reasonably secure against infection with variola.

DR. SCOTT considered that the question which was to his mind the most important that had come under discussion, had been practically avoided by all speakers, excepting Dr. Eshner. This is the definite determination as to the frequency with which re-vaccination is necessary. He himself depends largely upon the reports of the British Small-Pox Commission, and re-vaccinates every five or seven years.

DR. LEWIS, in closing, stated that he had failed in vaccinating persons who had previously had variola. He referred to the fact that his results from vaccination this year and during the epidemic in 1895 had been very different. The local reaction in his experience had been much less marked than in 1895, and, indeed, he had had but few cases of serious local inflammation. This he attributes to greater care in vaccination, and to the use in glycerinized lymph instead of the old-fashioned points. His percentage of successful vaccinations has also been higher with the glycerinized lymph; this was particularly noted in secondary vaccinations.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON ORTHOPEDIC SURGERY.

Stated Meeting, November 15, 1901.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

ORTHOPEDIC OPERATIONS FOR INTRACTABLE CEREBRO-SPINAL LESIONS.

DR. HOMER GIBNEY read a paper on this subject and reported two cases recently operated on in which marked improvement in locomotion was noticed. The two cases were Friedreich's ataxia. The inco-ordination of the lower extremities was in a measure overcome by tenotomies and fasciotomy for correction of the existing pes carus and trigger toe. He insisted on first correcting the deformity and then with properly adjusted apparatus worn for a long time—claimed marked benefit and in many cases complete removal of the interference incident to the paralyses.

DR. HENRY LING TAYLOR said he agreed with Dr. Gibney in regard to the great value of operative procedures in properly selected cases of paralytic deformity, particularly in children. While it was true that operations designed to remove deformity or restore stability to a helpless limb, not infrequently resulted in disappointment, owing to imperfect mechanical treatment afterwards, it was no less true that mechanical treatment was often imperfect or unduly prolonged by the failure to grasp the indications for operating.

DR. JOHN McG. WOODBURY expressed the opinion that chiefly operative procedures held out any possibility of recovery or permanent improvement; non-operative measures alone were simply palliative.

DR. GEORGE R. ELLIOTT said the field referred to was a large one and many a cripple was bed-ridden or going about with contractures and post-paralytic deformities that could and ought to be relieved. He cited as an example a patient upon whom he had recently operated, who had been bed-ridden for three years owing to post-typoidal contractures of spinal origin. By proper tenotomies, manipulation and subsequent use of apparatus, the girl was now walking quite as well as ever.

THE EFFECT OF OSTEITIS OF THE KNEE ON THE GROWTH OF THE LIMB.

DR. H. L. TYLER read a paper on subject. From measurements of the femoræ, tibiæ, feet and patella during or after

osteitis of the knee in forty cases where the disease had begun in childhood, the following conclusions were reached:

I. The affected limb, if approximately straight, was longer in the first four years in the large majority of cases. In observed cases of adolescents and adults it was from one to several inches shorter, when the disease had lasted over seven years.

II. The affected femur was nearly always longer in the first four years, and the lengthening of the limb mainly due to lengthening of the femur. In the older cases, after a duration of seven years or more, the femur was markedly shortened.

III. The tibiae were usually equal in length in the early stages; later the tibia of the affected side might be slightly longer for a time, but oftener shorter; the shortening increased considerably in the older cases, and after the subsidence of inflammation.

IV. With limbs of equal length and a duration of several years, the femur of the affected side was found longer and the tibia shorter than its mate.

V. The foot and patella showed a difference in favor of the sound side after one year and frequently before.

VI. The stimulation of growth in the affected femur was accompanied by a retardation in the tibia, foot and other parts; growth in the femur itself was finally retarded. The result after many years was often considerable shortening of the limb.

DR. T. HALSTED MYERS said that his observations were almost identical with those given by the reader of the paper. In 15 cases observed by him the lengthening was generally in the femur, and in some cases the femur lengthened while the tibia shortened; in others, both bones were lengthened. This occurred during the active stages of the disease, but he could not speak positively as to the ultimate result. He thought it probable that, if the knee recovered with good motion, there was less shortening, and wished to ask Dr. Taylor whether he noticed that limbs left with stiff joints shortened more than the others. The proper functioning of the joint after the cure of the disease was a most important element in securing the best nutrition and development of the limb.

DR. H. A. PARISH stated that there was no doubt about ultimate shortening in the majority of cases. He cited, however, the case of a girl aged sixteen years, disease of thirteen

years' duration, remarkable for great lengthening during the active stage of the disease. After a partial excision ten years ago, and recently a supra-condylar osteotomy of the femur, and a cuneiform section of the tibia for the relief of flexion deformity, there existed only three-eighths of an inch shortening, with limb at angle of 175°.

DR. V. P. GIBNEY said that years ago Dr. Berry had called attention to the subject of the reader's paper, and from examination of 50 cases had found the femur had grown in length. In his own practice he had been disappointed not to find lengthening. While lengthening was generally believed to be the rule, it could be readily understood how shortening might occur from interference with the nerve supply by pressure of the head of the tibia on the popliteal space. He referred to a patient seen ten years ago who had one and one-half inches lengthening after a long course of protection treatment. The girl was still young and the joint disease cured; she was allowed to use the limb freely and atrophy set in. At the same time the joint of the healthy limb was protected, and after four or five years the normal femur lengthened and the diseased one shortened, so that one-quarter of an inch difference was the final result.

DR. TAYLOR, referring to Dr. Myers' question, said that lengthening of the femur was the rule while the disease was active, and it was probable that more shortening occurred in the deformed and badly managed cases. In the latter, the final result would usually be considerable shortening in adult life. He referred to the work of Leusden who took measurements of radiograms, and reached conclusions nearly identical with his, except that Leusden had no opportunity to study adult cases where the disease had begun in childhood.

DR. GIBNEY asked Dr. Taylor how he accounted for the shortening in neglected cases. Dr. Taylor replied that he considered it due to retarded growth. Dr. Gibney said he was at a loss to understand why the bones shortened and would be glad to look over the statistics presented by Dr. Taylor. He supposed Dr. Berry's cases would be called neglected cases.

DR. TAYLOR said that his statistics in the majority of instances were not made from neglected cases, though it was probable that most of the adult cases might be called neglected.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON PEDIATRICS.

Stated Meeting, December 12, 1901.

WILLIAM L. STOWELL, M.D., CHAIRMAN.

MALNUTRITION.

The following papers were presented upon malnutrition as shown in syphilis, tuberculosis, and rickets:

SYPHILIS.—DR. C. G. KERLEY treated of this cause of malnutrition. He stated that the severity of syphilis in the child was dependent upon the activity of the disease in the parent. One could never promise that a syphilitic after marriage would beget children who would be free from this disease. There was nothing pathognomonic about the malnutrition produced by syphilis in children, but if well directed treatment, in children over three years of age, failed to remove the condition of malnutrition there was good reason for suspecting that syphilis was the underlying condition. The speaker referred to a case of this kind that he had seen, and which had not showed improvement until put on mercury and iodide. He had then learned that the father had contracted syphilis fifteen years before his marriage, but had been carefully treated, and had been told that he could safely marry. It was also well to give a child the benefit of anti-syphilitic treatment, regardless of the social standing of the parents, if it were poorly developed, was easily tired and showed a feeble vitality.

TUBERCULOSIS.—DR. FLOYD M. CRANDALL was the author of this paper. (See page 32.)

RACHITIS.—DR. A. JACOBI spoke upon this subject. He pointed out that one should distinguish between malnutrition accompanying rachitis and malnutrition directly dependent upon this disorder. This was a mistake we often made. There were really only a few varieties of malnutrition which were the exclusive result of rachitis. Prominent among these were a moderate excess of lactic acid in the stomach and an absence or greatly diminished amount of hydrochloric acid. The occurrence of the latter certainly led to a diminished supply of lime to the osseous system, but such a deficiency was not enough in itself to constitute rachitis. It was true that this disease had

been chiefly studied in the bones, but it often manifested itself at a very early time almost entirely in the muscles, so that one of the first symptoms of early rachitis was obstinate constipation, which began in the second or third month of life. The part of the body which suffered most was the chest, which, by losing its elliptical shape, interfered with the action of the lungs and the heart. If scoliosis were present, the aorta would be distorted and elongated, thus impeding the circulation in this great artery of the body. He then spoke of the thymus, which was sometimes large in rachitis, and was very liable to suffer, and cause symptoms by the narrowing of the distance (normally only 22 centimeters) between the manubrium and the spine. Even though the chest were but moderately compressed there was apt to be an apparent enlargement of the liver and spleen from the consequent downward displacement of these viscera. Authorities differed as to the effects of rachitis on the blood. For example, Jaksch had reported a diminution in the salts, and Schiff had found a lower percentage of hemoglobin, while John Lovett Morse had been unable to discover any distinctive changes in the blood. The muscular weakness of rachitis had already been alluded to. Sometimes the striped muscles were so markedly affected as to give rise to a condition which had been improperly called pseudoparalysis. The intestinal muscles commonly shared in this weakness. When a breast-fed infant, not constipated at birth, became so in the second or third months, it was fair to presume that rachitis was present. This muscular weakness of the respiratory muscles in rachitis also gave rise to a tendency to atelectasis of the lungs and to bronchial catarrh. This catarrh was the original cause of the enlargement of the lymph bodies, of acute bronchitis and of bronchopneumonia, which was so common. The liver was apt to be large and more or less fatty; the spleen was enlarged, and the digestive organs showed their involvement in the general disease by the occurrence of tympanites, colic, and vomiting. Many cases of cretinism had their origin in an intrauterine rachitis of the base of the cranium. The shortness of the cranial base arose from early ossification of the synchondrosis between the occipital and sphenoid bones and the resulting checking of the growth of the bones. In this way the large basal ganglia were liable to be damaged. Nearly all cases of laryngismus stridulus were attributable to cranial rachitis.

DR. WILLIAM HENRY PORTER opened the general discussion by declaring his belief that all forms of malnutrition originated in the following ways: (1) Defective quantity or quality of food; (2) a lack of sufficient exercise, or (3) from conditions disturbing the nervous mechanism. One or more of these factors was at work in every case of malnutrition, and it was the duty of the physician to analyze the case from these standpoints and direct the treatment accordingly.

DR. WALTER LESTER CARR spoke of certain cases of congenital syphilis that he had seen in which malnutrition had been a prominent element. One of these infants had lost weight although kept at the breast. However, syphilitic disease of the nose made it impossible for the infant to take the breast properly, so Dr. Carr's first step had been to have the milk drawn from the breast and fed to the child. He had done this in the belief that there was more need at that time for promoting nutrition than for specific medication. That his position had been well taken was evident by the rapid improvement in the condition of the baby.

DR. JOSEPH E. WINTERS said that the remarks of the last speaker had called to his mind a conversation that he had had with an eminent teacher on venereal diseases. This gentleman had declared it to be his teaching that, infants with inherited syphilis who were nursing an apparently healthy mother, should be weaned. Dr. Winters said that he had been astounded on hearing this declaration of a belief that he had thought to have been long ago exploded. The large mortality from inherited syphilis reported from abroad was probably to be explained by the prevalent custom of feeding such infants artificially. Breast feeding had the advantage of not only securing for the feeble infant an easily assimilated food, but it afforded the physician an easy means of treating the infant through the mother. While he did not rely upon that method alone, it should certainly be substituted for specific medication by mouth whenever these drugs disturb the digestion. There was no danger of the mother inheriting syphilis by nursing her infant, for she must have become infected before its birth.

DR. DAVID BOVAIRD, JR., said that he was reminded of a case of congenital syphilis which he had seen at the New York Foundling Hospital in the service of the late Dr. O'Dwyer. That great

clinician had directed that the child be taken immediately from its mother's breast for fear she might be infected with syphilis. On being told that such a view was directly opposed to good teaching, he replied that he had himself seen syphilitic infants infect apparently healthy mothers.

DR. WINTERS said that David Colles, of Dublin, about the year 1837, had enunciated his well-known law, which was founded on the absence of any recorded case in which a syphilitic infant had infected its mother with syphilis. Jonathan Hutchinson and other well-known authorities in more recent times had supported this teaching, and Hutchinson by correspondence and diligent investigation had backed up his statements in its favor. Dr. Winters said that in his own rather large experience he had never met with a single case of such infection, and he did not believe that such a thing was possible, for, if a mother had not contracted syphilis before conception she must have done so during pregnancy.

DR. KERLEY remarked that he remembered that a well-known physician of Munich had reported one case in which a syphilitic infant had infected its mother.

DR. A. JACOBI said that while it was certainly the rule that a syphilitic baby does not infect its own mother (Colles' law) exceptions sufficient to prove the rule had been noted, and he had himself seen some of these exceptional cases. He had discussed the subject in Bangs-Hardaway American Textbook and in his Therapeutics. A syphilitic baby should certainly not be allowed to suckle from a wetnurse unless she fully understood the risks she ran, but he agreed with those who contended that a syphilitic baby should nurse from its mother, though the latter might be kept under observation. She is either syphilitic herself, or she is immune. In neither case does she injure her baby. But, as said before, there are exceptions to the rule. He approved what had been said by Dr. Kerley concerning the great value of antisyphilitic treatment in puny children who do not respond to the usual tonics. So marked was the improvement usually noted from such medication in this class of cases, that he had been led to think that this experience had been the origin of the everlasting dosing of children with calomel indulged in by our ancestors. Cases of so-called retarded syphilis were really examples of syphilis

that had been suppressed in early life by a short course or treatment, only to break out again years afterwards, perhaps at the age of twenty or thirty. If syphilitic infants were given a prolonged course of antisyphilitic treatment, and were occasionally thereafter brought to the physician, the later outbreaks could be entirely prevented.

DR. WILLIAM L. STOWELL remarked that occasionally children who had suffered from congenital syphilis grew up without further evidence of the disease in themselves or in their offspring.

DR. H. D. CHAPIN pointed out that sometimes syphilitic infants did not appear to be badly nourished—indeed, they might even be stout though having at the time a mucous patch or some other evidence of the disease.

The Worsted Truss for Hernia in Infants.—S. C. Hubbard (*Annals of Surgery*) asserts that the worsted truss has certain definite advantages over other forms of truss. It is very cheap, and when soiled can be changed. The soiled one can be washed, and is then ready for use again. A skein can be washed a number of times without injury. When it loses its elasticity, however, its usefulness is gone. The truss can be worn in the bath. It is less likely to irritate the skin than a spring truss. Worsted is ordinarily sold in a skein made up of two laps. A lap, or half of a skein, is sufficient for a truss. The method of application is as follows: The child is placed on his back, the half-skein is passed under him and pulled far enough so that the end just reaches the internal ring. The other end is then passed through the loop of this first end and the hernia is reduced. The bunch ofworsted made by the looping of one end through the other is adjusted carefully and firmly over the hernial opening, and the free end then passed under the leg and fastened by a bit of bandage to the part on the back. If the skein is so long that there is a mass of extra worsted in the back where the perineal arm fastens to the horizontal part, a neater and more comfortable truss can be made by rewinding the worsted, making it the proper length. The truss should fit snugly, and should be worn at night as well as during the day. Whenever it is to be changed, the child should lie down. Occasionally, the skin of the groin becomes chafed. This can be guarded against and prevented in most of the cases by keeping the parts dry and by changing the worsted as often as it becomes soiled by urine or dejections.—*Monthly Cyclopaedia*.

Current Literature.

MEDICINE.

Parker, G.: Congenital Hepatic Cirrhosis with Obliteration of the Bile-ducts. (*The Lancet*. No. 4069.)

Three cases are reported. The first infant lived to be six months old. During the first three weeks of life he appeared to be in perfect health. The initial symptom was severe vomiting, after which the stools became white. He was weaned and gained weight for a time on artificial feeding. When first seen by the essayist the infant exhibited jaundice and white stools, but otherwise he was free from symptoms. At a later period, enlargement of the liver and spleen was made out by palpation. Ascites soon developed. Despite his condition the patient retained his vigor and appetite and his death occurred suddenly. The ante-partum history threw no light on the origin of the condition. There were no evidences of congenital syphilis. Autopsy showed a liver of double the natural size (11 oz). There were no biliary concretions. The common duct was impermeable for half its extent and the cirrhosis was evidently secondary to this obstruction.

In the second case the baby was born jaundiced and the mother had previously born six children with the same anomalous condition, none of whom had lived beyond a few weeks. The present patient, however, survived for seven months. Autopsy appeared to show that the bile ducts had been replaced by connective tissue. In this case cirrhosis had apparently not developed.

The third infant was also born jaundiced and lived five weeks. The common duct appeared to be absent and the liver was much enlarged. Hepatic cirrhosis was well marked and newly formed bile ducts were numerous.

About 60 cases are upon record. The extreme narrowness of the gall ducts at birth show how readily their obstruction might be brought about by inflammatory changes, due in turn to bacterial infection. The nature of the active agency in this process is as yet unknown.

Makuen, G. H.: Speech as a Factor in the Diagnosis and Prognosis of Backwardness in Children. (*The Journal of the American Medical Association.* Vol. xxxvii., No. 15.)

The cause of backwardness in children cannot always be determined at a glance. It is not always due to a central lesion, but may be the result of arrested cerebral development due to some abnormality of structure in the peripheral organs, especially the organs of speech. So closely are the speech centres related to the ideational centres of the brain that any impairment of the one generally results in a corresponding impairment of the other. The best method of arriving at even a proximately correct prognosis in cases of backward children is to apply the speech test; or, in other words, to ascertain by careful study and experiment to what extent the faculty of speech may be improved. It will be found that in those who are susceptible to training in what may be called the refinements of speech are the ones for whom we may promise the best results, and that possibilities for general development will be proportional to the capacity for speech development.

Walsh, J. J.: Postdiphtheritic Urticaria. (*The Philadelphia Medical Journal.* Vol. viii., No. 15.)

A girl of twelve years had a mild attack of diphtheria, Klebs-Löffler bacilli being demonstrated in cultures from the throat. On the evening of the fourth day, when the child was practically convalescent, some urticaria appeared, lasting about half an hour and reappearing the next evening. No antitoxin had been administered.

This case suggests the idea that urticaria and other eruptions should be looked for more carefully in diphtheria, as we do not yet know the reasons for their occurrence. It is probable that careful study of the conditions produced by the diphtheria itself will free the diphtheria serum from many of the suspicions hitherto attached to it.

Beaton, R. M., Caiger, F. Foord and Pakes, Walter C. C.: The Value of Neisser's Stain in the Diagnosis of Diphtheria. (*British Medical Journal.* No. 2125.)

The Neisser stain received a thorough test at the hands of the authors. The clinical material was from the Southwestern Fever Hospital. Swabbings were taken and Loeffler's blood-

serum used for cultures. The period of incubation was eighteen hours at 37° C., at the expiration of which the specimens were stained.

The clinical and bacteriological diagnosis were in accord 71 times, and at variance 30 times. In 5 cases the clinical diagnosis was negative and the bacteriological was positive (the former had been respectively follicular tonsillitis, scarlatinous sore throat, measles, and ulcer of the tonsil). In 25 cases of clinical diphtheria, some of which were typical, the bacteriological findings were negative. Such a result shows the fallacy of drawing conclusions from a single examination.

The authors conclude that Neisser's stain is of especial value for the non-expert who is more likely to recognize the bacillus when thus stained. This reagent possesses some other minor technical advantages over methylene blue, which is usually employed.

Mackie, F. Percival: The Condition of the Blood in Scarlet Fever. (*The Lancet.* No. 4069.)

The blood of 25 cases of varying intensity was examined. Moderate anemia was constant as was pathological leucocytosis, the latter appearing to vary directly with the severity of the angina, while its time of onset was very variable. An increase in the degree of leucocytosis in any given case appeared to be a favorable prognostic sign, and *vice versa*, the sudden fall perhaps indicating the complication of sepsis. As there is no leucocytosis in measles, the blood count has a value in differential diagnosis.

Brady, Edward J.: Acute Hydrocephalus with Effusion Through the Occipito-parietal Sutures. (*The Lancet.* No. 4072.)

The mother of the child was a primipara, and the labor was tedious; presentation R. O. A. A caput succedaneum formed and axis traction forceps were used.

The baby appeared to be well until the sixth day, when twitchings were noted. A few hours later the reporter found two swellings, right and left, in the line of the occipito-parietal suture. There was no pulsation, but fluctuation was present and of a character to show that the two swellings communicated. Several well-marked convulsions occurred, but without any disturbance of the gastrointestinal tract.

A diagnosis was made of accumulation of the subarachnoid fluid due probably to arachnitis. The child recovered under the local use of ice; bromids and sterilized milk were given internally.

Wautski: A Case of Basedow's Disease in a Boy of Five Years. (*Die Medicinische Wochenschrift.* No. 32. 1901.)

The patient is a boy five years of age with exophthalmus, goitre, asthma and palpitation. These symptoms have been present about three months. There is edema of upper and lower lids; the left side of the goitre is the larger; it is soft and pulsations are felt. Circumference of neck, 29 cm. Moebius' sign marked. Pulse, 120, regular; cardiac dullness normal; no murmurs. Twitching of extended arms; increased knee-jerks; child is irritable. The treatment that gave improvement was arsenic and galvanic current to sympathetic nerve and goitre.

Quincke, H.: Athyreosis in Childhood. (*Deutsche Medicinische Wochenschrift.* No. 49. 1900.)

CASE I.—Child six months of age; deficient mental and physical development. Thyroid felt as hard mass, the size of a large pea. Further examination showed diminution and gradual disappearance of the same. Death at four years from diphtheria. Autopsy showed absence of the gland. Symptoms during life those of cretinism.

Thyroid treatment improved the condition, but when the treatment was stopped there was immediate relapse.

CASE II.—Child fifteen months; had commenced to walk and talk. Without any previous disease child showed from this time arrest of mental development. At nineteen months there were loss of speech, and power to walk, and the child seemed an idiot. Teeth developed poorly. Skin loose and spongy. No myxedema. No thickening of the tongue. The gland was not found on careful examination. There was improvement after eight days, on the use of thyroid preparation, and after eight weeks the patient seemed normal. For two years it has remained normal. The author assumes the thyroid to have functionated up to the fifteenth month. The disease differs from myxedema and cretinism and has been called by him athyreosis subacute.

Schengelidze: Pathology of Otitis Media Purulenta in Infants. (*Archiv. für Kinderheilkunde.* Nos. 3, 4, Vol. xxvi.)

The author gives a very concise résumé of the literature up to date. His observations are from the autopsies of 90 children. His deductions are that purulent otitis media is very common in infants, that it is usually bilateral and that it is most frequently found in connection with pneumonia and catarrh of the intestinal tract.

The bacteriological investigations showed that the same kind of micro-organisms were found in the various types of otitis (serous, purulent and catarrhal).

The cavity of the middle ear was never found sterile in infants, and the same microbes that are habitually found in the nasopharynx were found nearly always in the tympanic cavity. The diplococci Fraenkelii and the staphylococci albi are most common. The presence of streptococci makes the prognosis bad. The observations relating to the variations in the air pressure in the tympanic cavity are as follows:

Breathing through the nose, shows hardly perceptible variations in the review of the fluid in the manometer (1 to 2 mm.).

Breathing through the mouth, 3 to 4 mm. When crying out loud (no tears), the level of the fluid may rise $4\frac{1}{2}$ mm.; when coughing, 6 mm.; when nursing there is an even drop of 1 to $2\frac{1}{2}$ m. Swallowing shows a drop of 1 to $1\frac{1}{2}$ in the first stage and $4\frac{1}{2}$ mm. in the second stage.

The development of purulent otitis media is aided most of all by the peculiarities of structure of the Eustachian tube and tympanic cavity.

The details of investigation leading to these conclusions are given in full.

Macleod, J. M. H., and Ormsby, Oliver S.: Report of the Histo-pathology of Two Cases of Cutaneous Tuberculides, in One of which Tuberclle Bacilli Were Found. (*The British Journal of Dermatology.* No. 156.)

One of the cases occurred in a child seventeen months old, with a somewhat tuberculous ancestry. Three months before consultation, a lesion resembling a "blind boil" appeared on the left forearm, pursued an eminently chronic course and eventually gave exit to some caseous matter. Similar lesions gradu-

ually developed over the lower extremities. A dactylitis also appeared in the two central metacarpal bones. The child, always delicate, was now suffering from cough, night-sweats and evening rise of temperature. The lungs were apparently normal.

The cutaneous lesions were histologically tuberculous and contained a few bacilli. Clinically they represented acne-like tuberculides.

McCaw, J. F.: Influenza as a Causal Factor in Acute Mastoiditis and the Early Treatment. (*American Journal of the Medical Sciences.* Vol. cxxii., No. 4.)

In the author's opinion la grippe infection is responsible for more cases of acute suppurative mastoiditis than either scarlatina, measles or diphtheria. Two distinct types of tympanomastoiditis are seen in influenza: (a) The suppurative, invading the tympanum, antrum and cells almost simultaneously in a virulent and destructive manner, and calling for early surgical treatment, abortive measures being contraindicated; (b) The hemorrhagic, with pronounced early symptoms which yield readily to abortive measures, only 5 per cent. going on to suppuration requiring radical interference.

Breton, M.: A Case of Jacksonian Epilepsy of Traumatic Origin in a Child of Fourteen Years. (*L'Echo Med. du Nord.* Vol. v., No. 37.)

The child had a neuropathic family history. At the age of fourteen months he fell from a first story window to the street, striking his head. Although unconscious for several hours, no other symptom developed. A fracture was felt in the right parietal bone, but there was no scalp wound, and no treatment was required nor given. After eleven years convulsions appeared, involving the left arm, leg, foot and fingers, without loss of consciousness. The attacks increased to the frequency of six or eight per day. On the right side of the head a sort of fontanelle, one by four centimetres in diameter, was felt. An operation was performed, and a cyst containing an old blood clot and some serum was found between the dura and the pia. The separated edges of the bone were thickened. After the first dressing there was an attack of general convulsions, due to the tightness of the packing. The dressing was readjusted and re-

covery was complete. One and one-half years later cure seemed to be permanent. The bone fissure had not closed, and pulsations were apparent at its site.

Cary, C., and Lyon, I. P.: Pseudomembranous Inflammation of the Mucous Membranes Caused by the Pneumococcus. (*The American Journal of the Medical Sciences.* Vol. cxxii., No. 3.)

The patient was an eleven-year-old boy of negative family history, who had been a mouth-breather from enlarged tonsils. Since the excision of the tonsils at the age of six years, he had had frequent attacks of tonsillitis, but the diphtheria bacillus had never been present in the cultures taken from the throat.

His present illness began with sore throat and fever, and proved to be an acute lobar pneumonia of both bases. An abundant white exudate developed on both tonsils; a culture taken from the throat proved negative for the diphtheria bacillus. The exudate extended rapidly to the lips, tongue, mouth, palate, nose, pharynx, eyes, glans penis and anus. There were physical signs of fibrinous pleuritis. Tympanites was persistent and marked, and the stools contained mucus and membranous shreds. The pneumococcus was present in all the pseudomembranous exudation, and also in the sputum. It was grown in pure culture from the eyes and nose, and together with the staphylococcus pyogenes aureus from the mouth and sputum. The pneumococci proved virulent for a rabbit, and were recovered, pure, from the animal's heart's blood. The boy recovered slowly after the pneumonia had terminated by gradual lysis. Local germicides proved useless, but amelioration was rapid after the administration of drachm doses of brewer's yeast was begun.

The literature is carefully reviewed. It proves that the recognition of these cases is very recent, since it is only within the past twelve years that they have been reported.

Wentworth, A. H.: Association of Anemia with Chronic Enlargement of the Spleen. (*The Boston Medical and Surgical Journal.* Vol. cxlv., Nos. 14, 15, 16, 17 and 18.)

From a study of the literature the conclusion is reached, that the blood changes in cases of so-called anemia splenica are those of a secondary anemia, the degree of anemia varying in

different cases. The degree of cachexia described in these cases does not always correspond to the blood changes, which are often moderate, rather than severe. The hemoglobin is often over 50 per cent., and the red blood-cells over 3,000,000 in a c.mm. It is obvious that the cachexia does not depend upon the diminished number of red cells, and the quantity of hemoglobin. It is not improbable that the cachexia and other symptoms are produced by a chronic intoxication similar to that in cancer, tuberculosis, etc.; and that the splenic and blood changes are merely two of the results thus produced. The source of the intoxication is unknown, and it is very probable that it may come from various sources.

It is not easy to see how fibrous changes in the spleen can produce toxins, though it can cause mechanical disturbance by interference with the circulation, or from the increased size, or by injury to its cells. We know that the splenic functions, whatever they may be, are not essential to the life, nor even the health, of an individual; therefore, the mere interference with function from an overgrowth of connective tissue in the spleen could not produce the symptoms described as characteristic of anemia splenica. The functions of the spleen are in no way analogous to those of the thyroid gland and suprarenal capsules.

If it were possible for fibrous tissue to produce toxic substances, it is difficult to account for their absence in connection with chronic hyperplasia of the spleen when associated with a variety of well-known causes. In these cases the lesions in the spleen are identical with those described by Bauti as characteristic of anemia splenica.

The statement that the splenic alterations are primary requires further proof. The splenic lesions are characteristic of chronic hyperplasia, a condition which is associated with a number of abnormal conditions in various organs, and which frequently give rise to no symptoms, or in other cases causes such symptoms as may be produced by the size and weight of the organ.

The lesions found in the spleen in cases of so-called splenic anemia do not warrant the statement that this condition is related in any way to pseudoleukemia.

In splenic anemia nothing characteristic of a primary disease has been discovered in any organ or in the blood. The number of cases, small as it is, unquestionably shows a diverse etiology.

The investigations have been incomplete, and most of the statements depend upon clinical observations.

The evidence is conclusive that anemia infantum pseudoleukemia is a secondary anemia, and that it owes its peculiar symptoms and blood changes to the occurrence of severe anemia at an early age. There is little doubt that anemia infantum pseudoleukemia and anemia splenica infettiva are identical conditions; and there is even less proof that the latter is a primary disease of the spleen than that the former is a primary disease of the blood.

There is no apparent connection between the character of the blood and the splenic changes in infancy.

The names anemia splenica, primary splenomegaly, anemia splenica infettiva and anemia infantum pseudoleukemia are objectionable because they are misleading. Anemia splenica has been used for years as one of the symptoms for pseudoleukemia, and should not be used to describe conditions that are in no way related to pseudoleukemia. No evidence has been furnished that justifies the use of the word "primary" in connection with splenomegaly. The same may be said of the word infettiva (infectious) in connection with the infantile forms of splenic anemia. Anemia infantum pseudoleukemia is a secondary anemia of infancy and in no way related to pseudoleukemia.

Potts, W. A.: Mentally Deficient Children. (*The Birmingham Medical Review.* Vol. I., No. 278.)

Cases of mental defect may be classified into congenital, non-congenital, and developmental, where "the actual lesion supervenes upon a brain originally imperfect in development." Among the congenital types are microcephalus, hydrocephalus, and cretinism. In the developmental group are eclampsic, epileptic, syphilitic and some post-febrile cases, which first demonstrate their weakness at one of the crises of development, such as dentition or puberty. The non-congenital cases may be divided into traumatic (very few) and post-febrile. Frequently a given case cannot be assigned to any characteristic type. The diagnosis is then made by the detection of several associated abnormalities, as: size, shape, asymmetry of the head, a bi-temporal diameter, narrower than the bi-parietal, together with a highly vaulted palate and an external auditory meatus directed backwards are undoubtedly signs of mental deficiency; the

tongue may be large or transversely furrowed; the ear may be set too far back, with absent lobules, defects in the helix or mis-shapen pinnæ; the teeth are often irregular; the skin is often coarse with an excessive development of hair; strabismus, hernia, talipes are common in the mentally deficient. Later the growth is often stunted, with height and weight below the average.

It is important that the diagnosis be made as soon as possible after birth; and in many cases it must be based largely upon observing how the child progresses. As regards prognosis, with the exception of cretins, a backward child seldom develops to the same extent as a healthy one. With careful training, commenced early, much may be done; any defect of the senses makes the outlook much more hopeless.

The weak mental faculties should be stimulated from the first, and later the child should be placed in a proper institution or taught at home by a specially qualified teacher. Constant attention to the general health is necessary. A course of thyroid extract benefits many cases. Puberty often occurs early and requires the most careful supervision, which should be continued as long as possible.

Forchheimer, F. : The Heredity of Appendicitis. (*American Medicine.* Vol. ii., No. 14.)

The history of three families is given. The first comprises 25 members, 5 of whom had appendicitis. Forchheimer agrees with Treves "that the association of this affection in families is not so often that of parent and child as of brother and sister." So in this family there was no transmission from one generation to another, but the 5 cases occurred in brothers and sisters and in cousins. In the second family there were 52 members in three generations, with 9 cases of appendicitis. Three occurred in the second generation, the predisposition coming from the father's side. In the third generation there were 6 cases of appendicitis, 3 occurring in children of two fathers who had had appendicitis. The fourth generation was too young to make the absence of the disease of value to the statistics. In the third family of 22 members there were 7 appendicitis cases, 2 in the second and 5 in the third generation. Both local and remote causes may be factors in the hereditary predisposition. Among the latter gastrointestinal troubles are of paramount importance.

SURGERY.

Allingham, Herbert, W.: Two cases of Intussusception Treated by Operation; Recovery. (*The Lancet.* No. 4069.)

These cases were operated upon promptly and without previous inflation or injection. In each instance the operator improved his opportunity for removal of the appendix.

In the first case laparotomy was performed upon the sudden supervention of acute abdominal pain, vomiting and diarrhea with blood in the stools, a tumor having been made out by palpation. An ileocecal intussusception nearly a foot long was easily reduced, and the appendix removed. Recovery was uninterrupted.

The second child, who had been seized with collapse, subnormal temperature, vomiting and rapid pulse was operated upon soon after its admission into the hospital, a tumor being recognizable within the abdominal cavity. The whole of the large intestine was found involved in an ileocecal intussusception. Reduction proved difficult but was finally accomplished. As in the first case the appendix was removed and recovery was uninterrupted.

Neither of these cases could have derived any benefit from inflation.

Owen, Edmund: What is Intussusception; How Should it be Dealt With? (*The British Medical Journal.* No. 2123.)

Intussusception may be likened to a "caught-up coat sleeve," save that in the former the intestine is caught-up from above downwards. It may be caused by anything which produces violent peristalsis. Unlike other forms of intestinal obstruction intussusception has definite symptoms. Chief among these is evidence, in the passage of mucus and blood, and absence of tympanitis that the gut is not completely obstructed. The distress occurs in paroxysms. The text book "sausage-shaped mass," which is said to be palpable in intussusception is an unfortunate expression and its absence in particular cases may have been responsible for delay in operating and loss of life.

The author describes the case of an infant with intussusception in which the condition was readily diagnosticated and a grave prognosis given. Laparotomy showed that the invaginated colon had "swallowed" the appendix and ileum. This intussuscep-

tion was readily reduced and the baby made a good recovery. If an enema is given for the purpose of reducing these invaginations, the tendency is rather to rupture the invaginating bowel than to force the prolapsed bowel into its proper place, this result of enema has frequently been encountered by the author.

Hopkins, F. E.: Malignant Disease of the Tonsils. (*Boston Medical and Surgical Journal.* Vol. cxlv., No. 16.)

A boy thirteen years old underwent an operation for the removal of suppurating cervical nodes, considered tuberculous. The tonsils were not especially enlarged at that time. Two months later the right tonsil nearly filled the oro-pharynx, but there was neither pain nor ulceration. The diagnosis lay between tuberculosis and sarcoma. The tonsil was removed by the galvano-cautery snare. Microscopic examination showed only simple lymphoid hypertrophy. After eight months there was a rapid recurrence, which, upon removal, again showed the lesion of simple hypertrophy. Nine months later the growth had reappeared, and then was pronounced to be probably a lympho-sarcoma of a malignant type. The patient died of recurrence three years after the first tonsillar enlargement began.

The case illustrates the difficulties in differentiating between sarcoma and simple hypertrophy of the tonsil.

Kenerson, V.: A Report of Two Cases of Lymphangioma (*The Philadelphia Medical Journal.* Vol. viii., No. 13.)

One case involved all the left side of the face. It was first noticed a few days after birth, and grew slowly for seventeen months, when it increased rapidly in size for the last month of life. The left eye and nostril were almost completely closed by the tumor. Skin electrolysis was tried without success. The tumor was then removed by operation and found to consist of lymph spaces varying in size and very irregular. Death occurred on the ninth day.

The second case was a lymphangioma situated at the junction of the shoulder and neck on the right side, having appeared in the second week of life. At five months of age the tumor filled the shoulder notch as high as the level of the lobe of the ear. The growth was removed by operation, its afferent trunk being found in the supra-clavicular space and tied. Death was due to shock.

Mackenzie, G. Hunter: The Treatment of Laryngeal Growths in Children. (*The British Medical Journal.* No. 2126.)

Thyrotomy is a most reprehensible resource in children, for the growths are certain to return, and in addition to the original mischief we then may have to deal with chronic stenosis, while operative death is by no means unknown. It is not unusual to find a history of repeated thyrotomies, followed by stenosis which in turn necessitates tracheotomy.

In the endolaryngeal operation untoward results may occur, but they are rare in comparison with the preceding. The skill required in the operation *per vias naturales* is, however, much greater than in an intervention like thyrotomy. Recurrence is also inevitable here and the number of operations in a given case may reach the amazing total of 100 or 120.

Recurrence usually occurs very promptly and in any case within a year; hence any case of alleged radical cure is useless unless a full year or more has expired since the operation.

The third form of intervention in this condition is tracheotomy, using the term in the sense of a radical procedure rather than an emergency operation which is also sometimes necessary. In the author's practice, tracheotomy has brought about numerous radical cures through the complete rest and freedom from irritation of the voice.

Since he published his first case, numerous corroboratory results have been placed upon record by practitioners in all parts of the world. Tracheotomized children attain maturity in spite of a belief to the contrary, and pulmonary disease does not appear to be increased by this condition.

Stiles, Harold J.: Radical Cure of Inguinal Hernia in Children. (*British Medical Journal.* No. 2123.)

He reports 100 operations. He does not believe in the use of the truss. In about 40 per cent. of the cases a truss had never been worn.

In regard to the proper period for operation, he lays down no general rules. If a baby a few months old is unable to wear the truss, which probably might possibly cure it at that tender age, he would not hesitate to interfere surgically. Of his 100 cases, 14 were subjected to operation during the first six months of life.

Nearly all the patients (95 per cent.) were males, and the hernia was rightsided in about three-fourths of the cases.

Not more than one-fifth of the 100 cases were literally congenital. Nearly one-half of all cases supervened before the fourth month.

The operation recommended is that which goes by the name of Mitchell Banks, which is preferable to Bassini's for children. In 86 of the 100 cases the hernia was easily reducible, and would stay in place as long as the patients were kept quiet in bed. Of 7 cases which were plainly irreducible and possibly strangulated, it is curious to relate that 4 underwent spontaneous reduction after a period of rest, although the taxis had failed beforehand. All of the 7 cases recovered.

In 7 of the 100 cases the hernia was cecal, and in 4 of these the appendix was removed during the operation, by reason of suspicion of appendicitis or of undue length of the organ. In 3 cases the sac of the hernia was tuberculous.

The series of operations is of too recent date for statistics concerning recurrence, but there are already two instances of the latter due respectively to incision of the inguinal ring and defective development of the abdominal muscles.

The mortality of the 100 operations was 3 per cent. In 1 taxis was responsible for contusion of the gut and associated hemorrhage, so that the child succumbed to operative shock. A second death was probably due to the chloroform narcosis. As for the third fatality, no cause could be adduced, and in the absence of an autopsy, death was regarded as due possibly to influenza.

Callari J. and Philippson L.: Sublingual Fibroma of Infants. (*Centralblatt f. die Med. Wochensch.* No. 37. 1901.)

The authors found this growth eight times in 6,000 children from four to fourteen months old. The seat of the growth is the frenum of the tongue. It is small, slightly elevated, whitish, gradually increasing in size up to 1 cm. in diameter. It is hard, does not bleed on pressure and does not readily undergo any alteration. When completely removed there is no recurrence, but it does recur if only partially removed. When it has lasted some time the centre undergoes coagulation necrosis. No constitutional or local signs of importance. The growth is peculiar to children in South of Italy.

Edington, G. H.: Case of Sarcoma of Infraspinatus Muscle.
(*Glasgow Medical Journal.* Vol. Ivi., No. 3.)

The primary growth was of the infraspinatus muscle of the left side in a girl eight years of age. Eighteen months after removal of the scapula, the patient died of multiple sarcomatous involvement of most organs of the body. A detailed autopsy report and the results of microscopic examination are annexed.

Dowden, J. W.: Torsion of Spermatic Cord. (*The Scottish Medical and Surgical Journal.* Vol. iv., No. 3.)

CASE I.—Age fourteen months. Duration of condition on entrance to hospital, five days. Cause unknown. Symptoms: vomiting; pain increased in certain positions; slight rise of temperature; constipation; objective signs; tender swelling in groin; testicle absent from that side of scrotum; thigh flexed. Operation showed twist of cord, one-and-a-half times. A thrombosis of veins. The testicle has a dark purple color. Amputation of testicle was done.

CASE II.—Age five months. Cause unknown. Duration on entrance to hospital, four days. Symptoms: slight vomiting; pain; objective signs; left inguinal region tender, red swelling; thigh flexed; testicle absent on side affected; temperature 100°. Operation and appearance of testicle and cord very much as in Case I.

CASE III. was a man of thirty-one years.

An instructive enumeration of possible causes and a description of the symptoms, diagnosis, pathology and treatment follow. A very complete list of references is given.

Tubby, A. H.: Results of Tendon Grafting in Infantile and Spastic Paralysis. (*British Medical Journal.* No. 2123.)

During the past three or four years he has done 11 cases of tendon grafting on the feet for paralytic talipes, all the different types of clubfoot having been represented.

He has also operated four times for spastic paralysis of the forearm and hand (transplantation of the tendon of the pronator radii teres, with section of the flexor tendons of the wrist).

The first requisite in these grafts is absolute asepsis; the next is good suture material for the tendons; he prefers fine silk sterilized with biniiodid of mercury (1-1000).

When the tendon to be reinforced is of sufficient size it should be split longitudinally, the end of the reinforcing tendon

brought through the slit and firmly sutured into position. Another point of importance is that the foot should be held in the position which is desired, while the tendons are being grafted; and when they have been sutured the reinforcing tendons should be felt to be quite tense. The reinforcing muscle should be strengthened by massage and faradism.

In spastic paralysis the problem of substitution is much more complicated than it is in the case of ordinary paralysis. In the spastic form the contractions are due to irritation of the nervous centres. Here we may see contractures, contraction, and paralysis in the same group of muscles. In these cases the ligaments offer considerable resistance which must be overcome.

Generally speaking, tendon grafting is contraindicated in flail-limbs, where all the muscles are equally affected; and also in slight paralytic valgus, varus and equinus, where tenotomy may fill the indication.

Michelazzi, Alberto: Milk and Meat as Vehicles of Infection and Intoxication. (*La Pediatria.* Anno. ix., No. 8.)

The paper concludes with the following summary:

1. The flesh of a tuberculous animal is rendered edible by heating it to the boiling point for five or ten minutes.
2. Such flesh, used as an aliment, causes no form of intoxication whatever.
3. Milk may be a vehicle for pathogenic germs in a numerous series of infectious diseases, of which tuberculosis is the most terrible.
4. Milk should therefore be boiled for alimentary purposes, or at least pasteurized.
5. Milk may also be a vehicle for chemical substances from the maternal organism.
6. Milk may also eliminate antitoxic substances.
7. Milk of a tuberculous cow may produce phenomena of intoxication.

Getchell, A. C.: Dangerous Hemorrhage After Removal of Enlarged Tonsils and Adenoids, with Report of a Case. (*Journal of the American Medical Association.* Vol. xxxvii., No. 14.)

Enlarged tonsils and adenoids were removed from a five-year-old girl at a single sitting, under slight etheranesthesia. The tonsils were taken out first with the guillotine; and after subsidence of the hemorrhage, which was copious, the ade-

noids were removed with forceps and curette. The immediate results of operation were perfectly satisfactory, but within two hours the ether-nausea appeared to have provoked repeated hematemesis. Although the bleeding ceased spontaneously the child exhibited signs of acute anemia, with extremely rapid heart action delirium, and restlessness. Saline solution hypodermically, produced improvement. Jacobi's mixture was given at frequent intervals, with heart-stimulants. Occasional attacks of vomiting of blood still occurred. The patient improved gradually and in a week was able to leave the hospital.

As a result of this experience the author believes it advisable to remove the tonsils in successive sittings, without the resort to anesthesia, in very young children.

Taylor, W. J.: Volvulus of Meckel's Diverticulum, with Recovery after Operation. (*Johns Hopkins Hospital Bulletin.* Vol. xii., No. 127.)

A six-year-old girl had been subject to occasional attacks of abdominal pain all her life; always relieved by a purgative. A sudden and acute attack could not be so relieved, but persisted with marked rigidity of the abdominal muscles, rapid and weak pulse and temperature over 100° F. Acute appendicitis having been diagnosed, an operation was performed, and a cystic tumor, almost gangrenous, measuring $3\frac{1}{2}$ by 2 inches was found and removed. It proved to be a Meckel's diverticulum, the pedicle of which had twisted upon itself three complete turns, thus cutting off the circulation and causing the gangrene. It sprang from the wall of the ileum farthest away from the mesentery and 14 inches from the cecum. There was no evidence of a cord-like remains of the diverticulum nor of the oraphalo-mesenteric vessels. The intestines were congested and several coils were glued together by adhesions. Recovery was complete in three weeks.

No exactly similar case could be found in the literature. Carwardine reports a case of volvulus of Meckel's diverticulum occurring in a child two days old who died twenty-four hours after operation. Prince records the case of a four-year-old child in whom a diverticulum had perforated.

In the discussion Dr. Mitchell referred to a case of a boy four years old operated upon for strangulated left inguinal hernia. In the hernial sac was found a loop of ileum and beside it a Meckel's diverticulum.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

FEBRUARY, 1902.

[No. 2.

Original Communications.

A CONTRIBUTION TO THE SYMPTOMATOLOGY OF CRETINISM AND OTHER FORMS OF IDIOCY.*

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Stigmata of degeneration are defined as deviations from the normal physical conformation of the individual, which are seen for the most part in degenerates; that is in individuals morally and mentally deficient. If these stigmata are studied more fully we find that as a rule they rarely affect the organs necessary to the maintenance of life. They are found in those portions of the body least necessary to the continuance of life. These stigmata are of a nature found in an early embryonal period of man or even in a lower order of the animal world. Many of these so-called stigmata are seen so frequently in persons in other respects normally developed, that we can scarcely regard them as signs of degeneracy. Others, however, are truly characteristic, if not pathognomonic.

In the latter class we would include an anatomical sign or stigma which we have for some time carefully studied and which we have observed on certain patients of our clinical material. While demonstrating the peculiarities of the skin and conformation of the hand of cretins, we were struck with a prominence in the region of the antithenar eminence and over

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

the situation of the os pisiformis. Inasmuch as this peculiar eminence was present in all the cretins which we have met we at first thought that this was a peculiarity of the cretin hand. On further study, however, we became convinced that this sign or stigma was to be found in other degenerate individuals. Before pointing out the cases in which this peculiar stigma is found we will describe it more fully.

This prominence is immediately adjacent to the groove which separates the palm of the hand from the forearm. It is

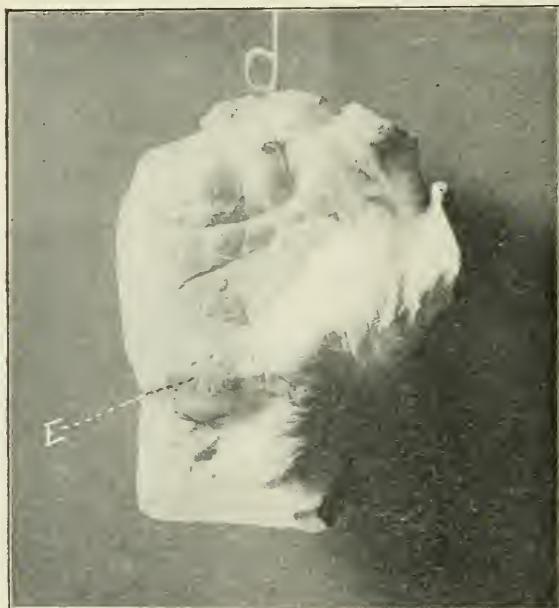


Fig. I. CAST OF THE HAND OF A BOY CRETIN FOUR YEARS OF AGE UNDER TREATMENT FOR TWO YEARS AND SIX MONTHS.
E EMINENCE DESCRIBED IN THE PAPER.

distinctly localized to this part of the antithenar eminence and, viewed from the side, rises abruptly from the above groove, giving a bayonet-like appearance. This prominence is apparently an over-development or hypertrophy of the small muscles of the inner border of the hand, attached to the os pisiformis, as well as perhaps an enlarged condition of this bone itself. A similar prominence can be seen on the forefoot of the domestic cat. Inasmuch as this animal supports the weight of the body

in walking on this prominence, we might conclude that in these children walking as they do late in life, this prominence is the result of a hypertrophy caused by the act of crawling on the floor and supporting the weight on the inner border of the hands. But this prominence has been observed by us in a cretin only three months of age.

We are therefore justified in assuming that this prominence over the pisiform bone in degenerate infants and children is a congenital anomaly.

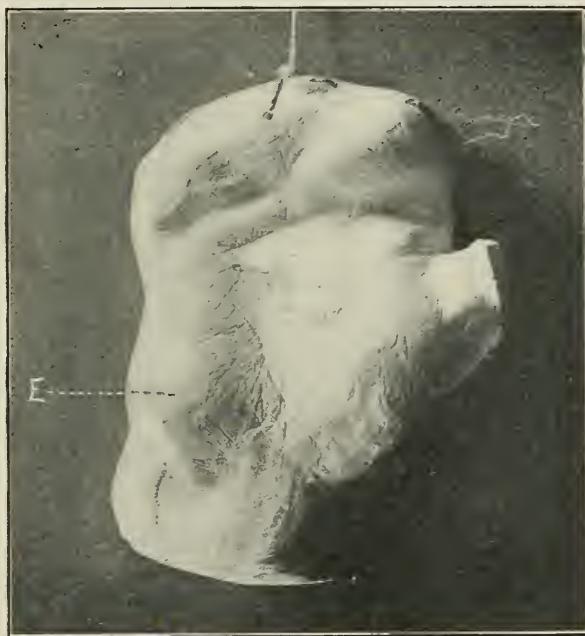


Fig. II. CAST OF THE HAND OF A FEMALE DWARF TWELVE YEARS OF AGE, WITH ENLARGED THYROID GLAND AND MENTAL WEAKNESS. E EMINENCE DESCRIBED IN THE PAPER.

It would be of great interest to know whether this prominence exists in the hand of the upper extremities of the highly developed anthropoid apes and whether it is more highly developed in those species of apes who walk on all four extremities. As for the occurrence of this prominence which we have described, we have not as yet seen it in a perfectly normal infant or child. The infants in which we have seen this prominence were idiots, cretins, microcephalic idiots, and children

who were congenitally deficient. We have as yet not met this anatomical prominence in the Mongolian idiot, though our experience includes a large number of cases of this affection. We found it in all cases of cretinism. (See Fig. I.) It was absent in a case in which there were certain physical signs seen incretins, but in which the child was quite intelligent. It was seen in two children who had marked macroglossia with polydactylia. Both these children were markedly intelligent.

This anatomical stigma of degeneration was found in 2 cases of microcephalic idiocy. It was also found in an idiot of hydrocephalic class, and in a dwarf of marked mental degeneracy with goitre. (See Fig. II.) The cases have not been numerous enough to allow of any further conclusions. We are convinced, however, that the prominence just described is a true anatomical stigma of degeneration, and as far as the cretinism is concerned a highly interesting part of the symptomatology of this disease.

Treatment of Scrofulosis and Tuberculosis by Inunctions of Cod-Liver Oil.—For five years Rohden (*Therapeutische Monatshefte*, August, 1901,) has been using a mixture of 50 per cent. deodorized cod-liver oil, balsam of Peru, and oil of cinnamon, lemon and thyme, combined with lanolin, glycerin and an alkali, to rub into the skin of scrofulous and tuberculous children. He reports extremely satisfactory results from this inunction with "dermosapol," as he calls the mixture. It is a stable, aromatic preparation, of which every particle is absorbed. It is rubbed into the chest and back in the morning, and into the abdomen, buttocks and limbs at night. About 100 gm. are required for ten or twelve days. The cells and tissues are influenced by the cod-liver oil and the lymph becomes saturated with the ethereal oils and the balsam. Tuberculosis on a scrofulous basis is exceptionally benefited by this treatment, especially glandular and joint affections and lupous lesions.—*Journal of the American Medical Association.*

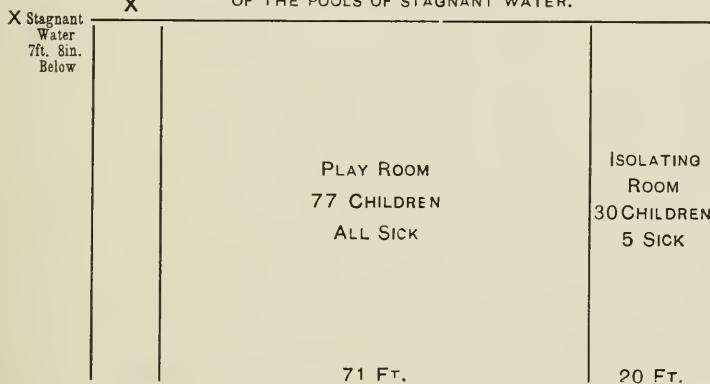
AN ACCOUNT OF A MILD EPIDEMIC OF UNCERTAIN NATURE IN CHILDREN.*

BY ROWLAND G. FREEMAN, M.D.,

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In the Foundling Hospital, at the end of June, 1899, a group of seventy-seven children, who had been separated from the others by day, all became sick in a fairly similar manner at about the same time. These children were what are known as the "play-room children," children that during the day were taken to a large room on the ground floor of the building and there instructed in kindergarten work, and allowed to play under

PLAN SHOWING THE ROOMS IN WHICH THE SICK CHILDREN WERE, AND THE LOCATION OF THE POOLS OF STAGNANT WATER.



supervision. Adjoining this play-room, but cut off from it by a partition, is another smaller room used for isolating children with ring-worm of the scalp. In this room there were thirty children, five of whom became sick in a similar manner to those in the play-room, but less severely, so that none of them were transferred to the hospital. Of the seven hundred children in the Foundling Hospital at that time, none of the others became

*Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

sick in a similar manner, although on the floor above these two rooms there is a nursery which was occupied by children.

It became suddenly noticeable that the children in the playroom lacked their usual activity; they became drowsy, lost their appetites, and some of them complained of headache. These children became gradually worse; some of them would sleep sitting upright, others would lie down on the benches and sleep.

On June 28th two of these children had fever and seemed sick enough to be transferred to the hospital building and confined

Table of the Principal Symptoms and Physical Signs of the Hospital Cases

DATE	NAME	CHILL	HEAD-ACHE	VOMIT-ING	FACE FLUSH'D	TONGUE COATED	CONSTI-PATION	TENDERNESS OVER SPLEEN	BLOOD
June 28.	Mary A.			yes		yes		yes	neg.
" "	Joseph P.					yes	yes	yes	
" 29.	John Mc. C.	yes	yes			yes			plasm-odium
" "	James G.					yes	yes		neg.
" 30	Henry C.		yes	yes	yes	yes			neg.
" "	Aloysius I.		yes		yes	yes			
" "	John L.		yes	yes		yes			
" "	Anthony P.		yes			yes			neg.
July 1.	May M.		yes	yes	yes	yes			neg.
" 3.	Mary O'C.	yes	yes	yes		yes			
" 5.	George F.	slight	yes		yes	yes			neg.
" 10.	Mary L.	slight			yes	yes			

to bed. The following day, June 29th, two more, and on June 30th four more were so transferred, and one each on July 1st, 3rd, 5th and 10th.

Of the twelve children that were transferred to the hospital two had marked chills and two chilly sensation, eight complained of headache, one of abdominal pain and five vomited. They all had fever (see temperature charts) ranging from 100.5° to 105° and going up and down, some cases touching normal once each day, and others not. The pulse was accelerated, ranging from

100 to 140; the respirations in most cases were below 30, in some as high as 50.

On examination five had flushing of the face; they all showed coated tongues without the redness of the tongue and pharynx ordinarily associated with a gastroenteric disorder. One had abdominal tenderness. None had evident enlargement of the spleen, although two had tenderness localized over the spleen.

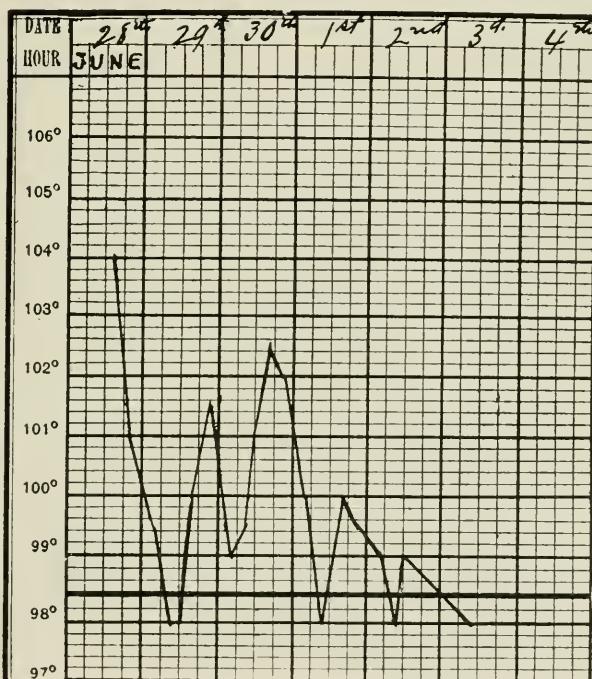


CHART I.—Mary A.

When the first 4 cases had been transferred, all coming from the same room and without the ordinary appearance and symptoms of acute gastrointestinal disorder, they were ordered castor-oil and were kept in bed on milk-diet for further observation.

The 5 cases that came into the hospital on the 30th, were of the same type. None of them had a history of bad bowels,

nor any evidence of gastroenteritic disorder, except that some of them had vomited and they all had the coated tongues.

After the initial purgative dose, with the rest in bed and milk-diet, some of the children showed a moderate improvement, but in none of them was there a subsidence of the fever or a recovery.

Examination of the blood by the house staff in seven of these children soon after admission gave a negative result.

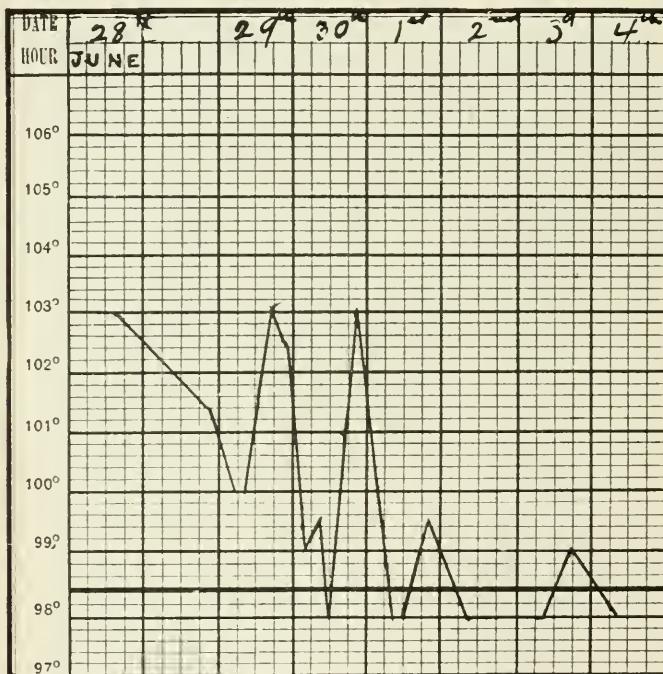


CHART II.—Joseph P.

On the first of July one of the children, John McC. (Chart III.), who had a chill on entrance, with a rise of temperature to 105° , followed by complete subsidence, had, on the third day, another rise to the same point, preceded by a chill. On making a second examination of the child's blood, the plasmodium was found. This typical manifestation, with the finding of the plasmodium in this case, seemed to render probable the suspected diagnosis of malaria in the other children, and immediately all of

those under observation in the hospital were given two grains of quinin every three or four hours, with a complete subsidence of the temperature in most cases within about twenty-four hours.

By this time the play-room children were becoming so much worse that their ordinary duties could not be fulfilled, and in my absence these children were all given quinin without first having obtained smears from the blood. They were at first treated with two grains of quinin a day, without amelioration, but upon the dose being increased to six grains a day, a rapid recovery of all took place.

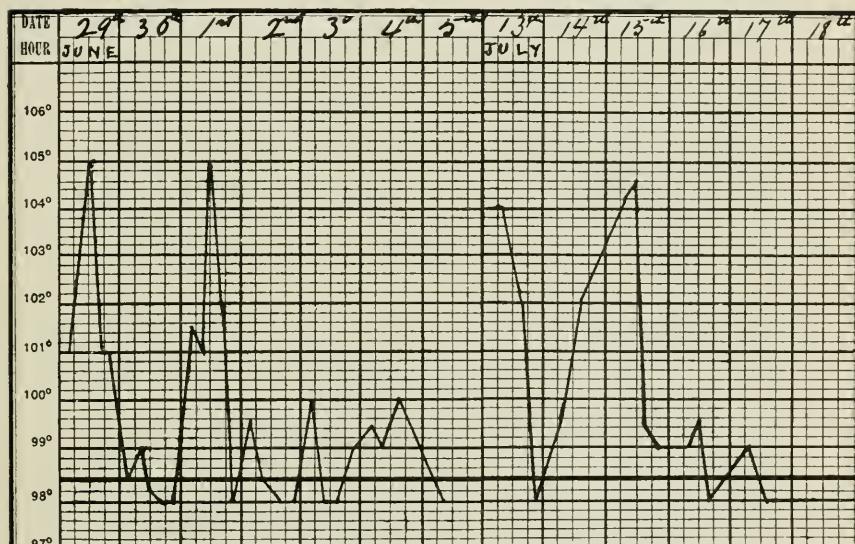


CHART III.—John McC.

The diagnosis of the condition present in these children is of considerable interest and that most readily reached in all the cases, except the one in which the plasmodium was found, is that of gastroenteric disorder. In support of this diagnosis we have the coated tongues, the headache, the vomiting in some cases and constipation in 2 cases; but against this diagnosis we have the fact that the children did not have red tongues or pharynges, that they did not have tympanitis or dilated stomachs, and not one of them had diarrhea, and the further fact that none of them cleared up entirely after acting on the bowels and

putting them on proper diet with rest. Furthermore, these play-room children had previously received the same food as the other children in the house, none of whom were affected. If then, there is doubt as to the existence of a simple gastro-enteric disturbance in these children, we are led to consider the other diagnosis of malaria.

The marked susceptibility of children to malarial infection has long been known but has recently been especially empha-

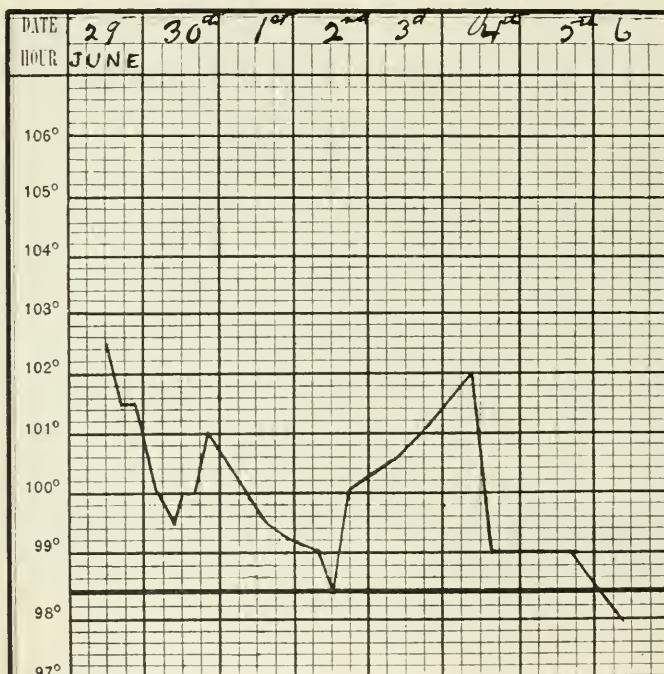


CHART IV.—James G.

sized by the work of Celli, Koch, and of the English Malaria Expedition to Sierre Leone. This susceptibility of children is so marked that Koch was in the habit of determining the extent of malaria in each new place he visited during his investigations by ascertaining the frequency of the malarial parasite in the blood of young children in the locality. This test he found to be accurate and reliable.

In those localities in which he found the blood of the chil-

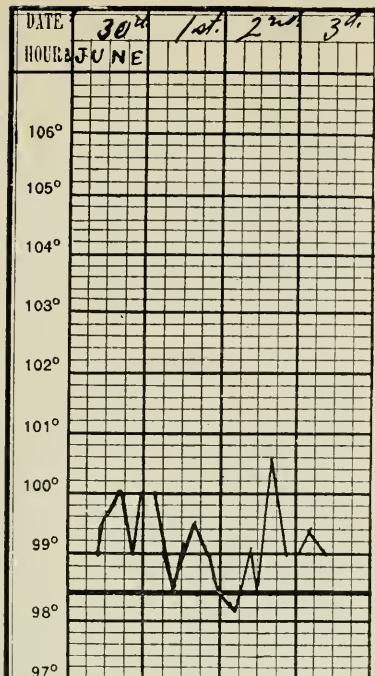


CHART V.—Henry C.

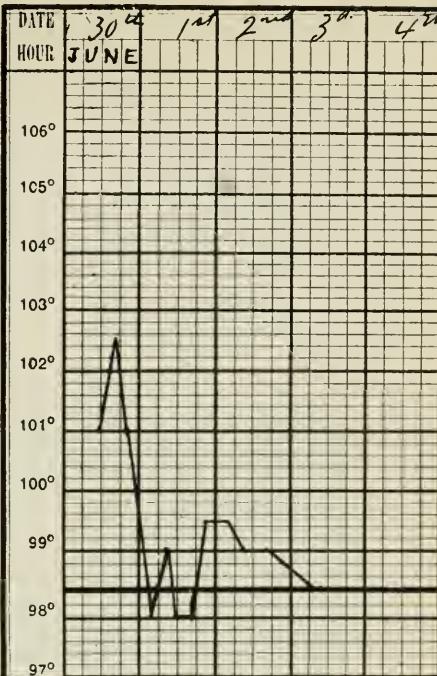


CHART VI.—Aloysius I.

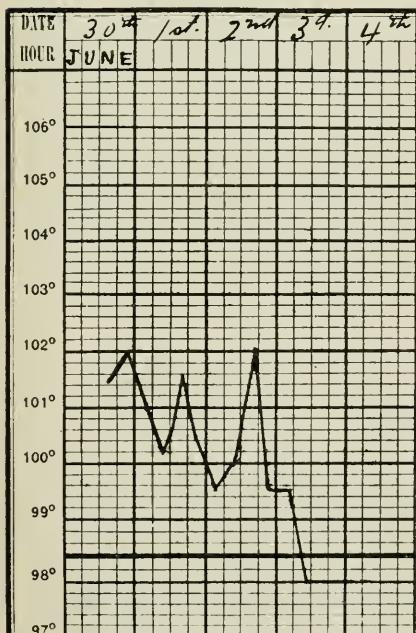


CHART VII.—John L.

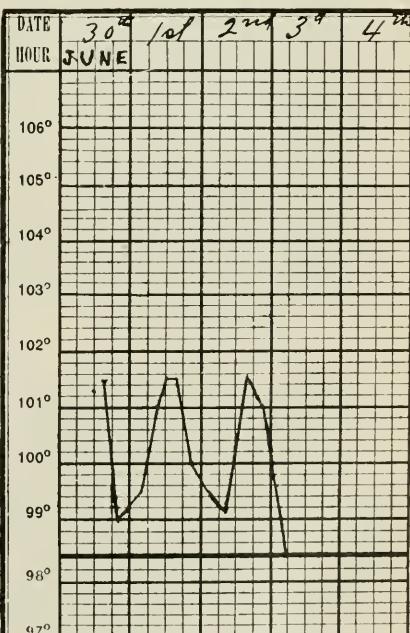


CHART VIII.—Anthony P.

dren ordinarily free from the malarial parasite, he found that no malaria existed in any of the population, while in the malarial regions he always found the young children very generally infected. This malarial infection was most common in children under one year of age, becoming less frequent with advancing years. Thus in one malarial district in which eighty-six children were examined for malarial parasites 16 per cent. of those under one year of age were found to be infected and 4 per cent. of those over one year of age.

In another village where one hundred and forty-one chil-

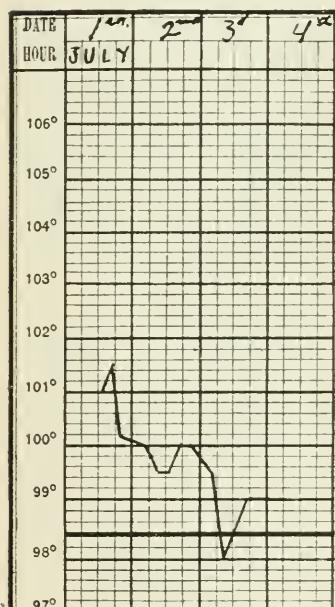


CHART IX.—May M.

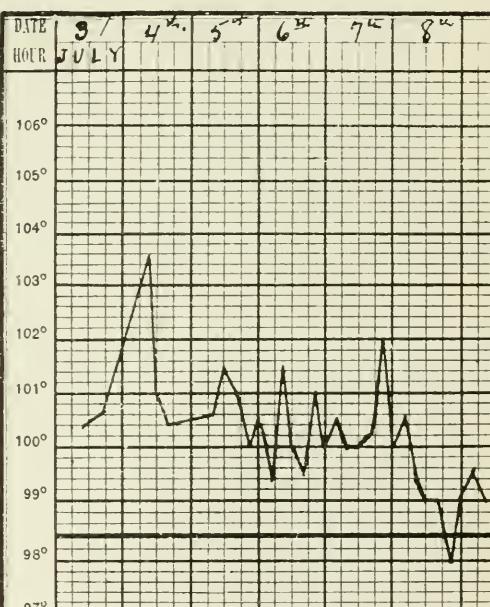


CHART X.—Mary O'C.

dren were examined 15.5 per cent. of those under one year of age showed the malarial organism in their blood and 7 per cent. of those over one year of age.

In still another village, of one hundred and eighty-one children examined, 41 per cent. of those under one year of age showed the malarial organism in their blood and 14.7 per cent. of those over one year of age.

It seems fair to conclude from such results that most children are very susceptible to malarial infection and that immun-

ity is gradually acquired, so that in this way the practical immunity of native adults in malarial districts may be explained.

The function of the mosquito as a carrier of malarial infection, and the importance of stagnant water as a breeding-place for the anopheles are so well established that they may be merely mentioned as probably essential etiological factors in the production of malaria.

Clinically the condition of these children gave rise to a sus-

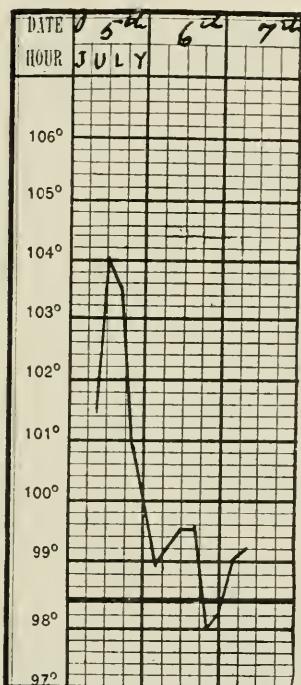


CHART XI.—George.

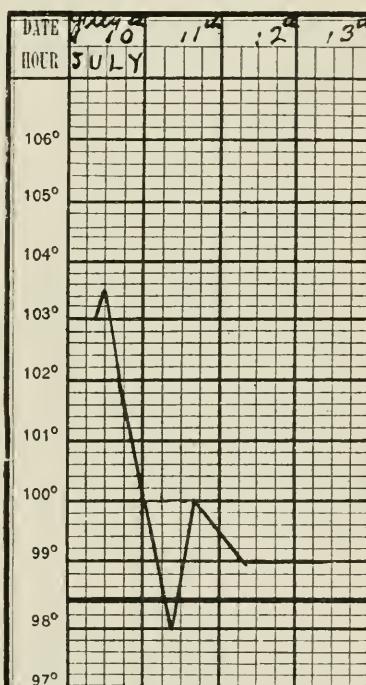


CHART XII.—Mary L.

picion of malaria when first seen, simply by exclusion; they were unlike gastrointestinal disorder, they resembled each other closely but did not show the positive signs of enlarged spleen or of plasmodium, except in one case later. The temperature charts, with one exception, were not typical of malaria. The question arises whether there is any stage in malarial infection in which the conditions found in these children may be present.

In studying the charts of cases of experimental malaria it is found that during the period of incubation, which lasts from one and a third to eleven days, there may be an irregular temperature without enlargement of spleen and without the presence of the plasmodium, this being followed, if curative treatment is not used, by the invasion with enlargement of the spleen, presence of plasmodium, and the typical temperature.

Assuming the diagnosis of malaria, we must search for the source of infection. It happened that in the spring of 1899 an excavation was made almost adjoining the play-room (see plan), which was nearly eight feet deep, preparatory to the erection of a new building. There had been but little rainfall during the two months preceding this epidemic. During the middle of May there had been about 7-10 of an inch rainfall; at the end of May 1-16 of an inch, and beginning with the 20th of June, on which day 1-10 of an inch of rain fell, there were a number of rainy days. On the 23d, 24th and 25th of June $\frac{1}{2}$ of an inch of rain fell, while on the 28th and 29th 8-10 of an inch fell. During these rainfalls puddles of stagnant water collected in the bottom of this excavation. As will be noted this collection of stagnant water was nearest to the play-room and somewhat farther removed from the isolation-room. A reconciliation of this condition with the mosquito theory of the causation of malaria is, however, difficult, for the larval stage of the mosquito lasts from twenty to twenty-two days in summer, while there must still follow a period of eight to ten days after the mosquito has acquired malaria before these organisms may be transmitted to a person bitten.

It is further noteworthy that the temperature of the air during the early rains in May was not sufficiently high to facilitate the development of the mosquito larvae, and the rains at the end of June were too near to the time of the outbreak to allow for the development of the mosquito, and afterward of the malarial parasite within it. Moreover, no invasion of mosquitoes and no mosquito bites on the children were noted.

In conclusion I would say that these children answered clinically to a malarial condition in its prodromic stage more nearly than to anything else, and that this diagnosis was further confirmed by one typical case of malarial seizure, accompanied by the presence of the plasmodium in the blood, and that all these eighty-two children recovered promptly on the adminis-

tration of quinin; that as an etiological factor we find pools of stagnant water adjacent to the room in which these children were during the day; but when we attempt to ascribe this outbreak to these pools in the light of our present knowledge concerning the causation of malaria by mosquitoes, we find that the conditions present were not sufficient.

DISCUSSION.

DR. PACKARD.—I think the anopheles appears in Philadelphia generally about June 15th; I don't know how early you may see it in New York.

It occurs to me that this epidemic may have been one of influenza and that the one case in which the plasmodium was found was a relapsing case of malaria. I have lately seen two such cases in Philadelphia where the malaria manifested itself during a period of lessened resistance brought about by influenza.

DR. KERLEY.—It has been my privilege during the past eight or ten years to do a great deal of out-patient work and I have frequently met with an affection with a history somewhat as Dr. Freeman has given. The child presents a coated tongue, a rise in temperature at a certain time each day; in some there is no fever, but a periodicity as regards the other symptoms. The child becomes languid and drowsy at a definite time every day, usually in the afternoon. The examination of the blood fails to show the plasmodium and yet quinin cures the condition. I have not put these cases down as malaria and I do not know what they are.

It has been suggested that if we insert a needle into the spleen we might find the plasmodium.

DR. BUCKINGHAM.—It seems absurd for a Boston man to say anything about malaria before men who see so much more of it at home, but during the Spanish War I had charge of a number of men who had malaria and it was not at all uncommon to make a blood examination with negative result, and yet later to find plasmodia abundantly in the same case. Those cases were all of the estivo-autumnal type and repeated examinations would at first be negative.

DR. WENTWORTH.—I would like to ask Dr. Freeman how old some of these patients were and particularly the age of the one that had the plasmodium.

DR. FREEMAN.—All were between three and five years of age.

DR. WENTWORTH.—I notice that the one with the plasmo-

dium is the only one that had a typical malaria temperature chart.

DR. ADAMS.—I do not see the evidence of malaria in these cases and I am accustomed to see a good many cases of malaria in very young children. The observation of Dr. Acker and myself is that we almost invariably find the plasmodium in children whenever there is a marked paroxysm, and when we get such a marked paroxysm it will be controlled by quinin at once. It is certainly a singular thing that but one of that large group of cases showed the plasmodium and it rather tends to vitiate the diagnosis of malaria in epidemic form.

Another point is that those temperature charts are not the typical temperatures as we usually see them; 101° to 102° rectal temperature does not represent a malarial temperature to my mind. If Dr. Freeman's charts showed a rectal temperature of 104° to 107° in children with paroxysms and a sudden drop in the temperatures without convulsions I should be more inclined to accept his malarial theory. It is difficult, too, to reconcile with the malarial theory the fact that these cases all occurred at the one particular time. That is not our experience with malaria either in hospital or private practice, and I should rather be inclined to the theory advanced by Dr. Freeman, but which he did not hold, that there must have been some gastro-enteritic disorder, that there must have been something that all the children took to give them this slight rise of temperature. A rectal temperature of 101° is very slight for the child's normal rectal temperature is more frequently 100° than it is 99° and I would not consider these temperatures representative of any particular disease.

DR. FREEMAN.—I did not hold particularly that this was a malarial epidemic and the more I have thought of it the less sure I felt about it. The temperature given here, if they are malarial, are of the periods of incubation, except in 1 case. These patients were all cured by quinin and they were not relieved at all by the efforts to clean out the bowels and remove any possible toxic substances.

Three Cases of Pure Hereditary Ataxia.—E. Weber (*Deutsch. Med. Woch.*, September 26, 1901) describes a family in which three children present the typical clinical picture of Friedreich's disease. The parents are healthy and well-to-do, and have two other healthy children. The affection commenced about the sixth year in each, and can be observed in the three patients in the incipient, established and advanced stages. The youngest is seven and the oldest eighteen and bedridden. The ataxia in his case is more pronounced than Weber has ever witnessed in any tabetic subject.—*Journal of the American Medical Association.*

MULTIPLE ARTHRITIS IN A CHILD TWO YEARS OLD SUFFERING FROM GONORRHEAL VULVOVAGINITIS.*

BY GEO. N. ACKER, M.D.,

Washington, D. C.

V. C., colored female, two years of age, came under the care of my assistant, Dr. Wm. N. Fisher, in the Children's Hospital Dispensary on May 1, 1901. She had a profuse vaginal discharge which was found to contain numerous gonococci. This discharge had attracted the mother's attention several days previously, but had probably existed for some days longer, for the child had complained of a pain when she urinated. At this visit when the lower limbs were handled they appeared to be painful but were not swollen. She returned to the dispensary in a few days with the discharge about the same and the ankles and knees markedly swollen and painful. Until this time the child was able to walk about. The case was referred to the hospital for treatment and she entered my service May 11th.

FAMILY HISTORY.—Father and mother are both living and in good health. No specific nor tubercular history.

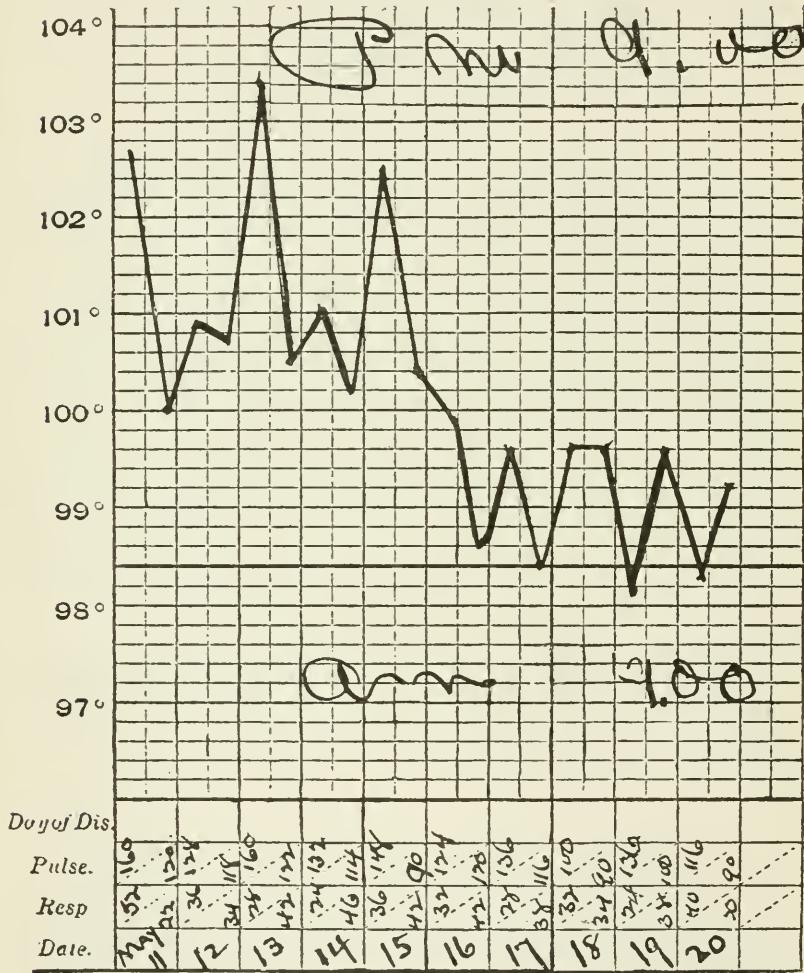
PREVIOUS HISTORY.—Born after a difficult labor, forceps used. Breast-fed for fifteen months then put on cow's milk, tea, etc. Dentition began at eight months. Had always been a very healthy child, having had none of the infectious diseases of childhood.

PRESENT ILLNESS —Mother not definite about the date when the child was taken sick, but she first noticed a profuse creamy vaginal discharge about two weeks ago, accompanied by painful and frequent micturition, with pains in back and loins. Seven days later the child began to have severe pains in the right ankle, the joint becoming red, hot and swollen. It was extremely sensitive to pressure and the movements were limited and painful. The next day the right knee became involved and after that the left knee and ankle. The condition has grown

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

progressively worse. She has had fever. Bowels constipated, appetite good.

PRESENT CONDITION.—The child is well developed and unusually intelligent for her age. Both knees and ankles are



swollen and painful, the patient crying whenever disturbed. The right knee shows the greatest amount of swelling, the joint being symmetrically and uniformly enlarged. The right ankle and left knee and ankle are involved to a lesser extent, motion being exceedingly limited and painful. Teeth and gums are in

a good condition. Tongue coated. The examination of the heart, lungs, liver and spleen showed them to be in a normal condition. The child appears very weak and exhausted and complains of pains in head and limbs, does not sleep well and is cross and irritable when disturbed. There is a free purulent vaginal discharge. The external genitalia are swollen and there is an intense hyperemia of the vulvovaginal mucous surfaces. The urine contains a slight trace of albumin with many epithelial cells and leucocytes. No renal casts. The inguinal, cervical and axillary lymph nodes are slightly enlarged.

TREATMENT.—The girl was placed on liquid diet and 5 grs. of salicylate of soda given every four hours.

Vaginal douches of warm saturated solution of boric acid were ordered every three hours, the joints to be wrapped in cotton after the use of a 25 per cent. ichthyol ointment twice daily.

May 14th.—Slept better than on previous nights. There is a small amount of discharge from the vagina. Douches continued night and morning and in the interval a tampon of gauze saturated with a 1 to 4 ichthyol-glycerin solution was kept in the vagina.

The right knee somewhat swollen and the other joints are almost normal in size. To-day the right knee joint was aspirated and a small amount of serum was obtained, which on examination showed many large polynuclear leucocytes, but no gonococci.

May 17th.—Much improved. The salicylate of soda was stopped and 5 drops of mild tincture of iron given three times daily.

May 24th.—The girl is bright and uses her legs as if free of pain. The right knee is still enlarged and though the joint is movable yet the leg cannot be fully extended.

The urine is negative. There are some shreds in the douche but no discharge.

June 7th.—No vaginal discharge. No signs of swelling about joint. Motion good and the girl is able to walk.

HARE-LIP.*

BY B. K. RACHFORD, M.D.,

Cincinnati, O.

The purpose of this paper is to relate the strange and tragic history of a family into which there were born four girls with hare-lips and cleft palates, and three boys not showing any trace of these deformities.

Both Mr. and Mrs. A., the parents of these children, have family histories of tuberculosis. Mr. A.'s mother, one uncle and two aunts on his mother's side, died of this disease. Two of his brothers also died from tuberculosis, and of two remaining sisters both are probably tuberculous. Mr. A. himself and one brother show no evidence of this disease.

Mrs. A. lost one aunt, and possibly another, from tuberculosis, but Mrs. A., when I first knew her, was apparently in perfect health. There is no history of hare-lip or cleft palate in the family, but the mother has a high-arched palate.

This family came under my observation in 1893, when the mother was approaching her fifth confinement. At this time I obtained the following history.

In 1881 there was born to Mr. and Mrs. A. their first child, a girl, with a cleft through the upper lip and nostril, and hard and soft palates. This deformity was very great and could in no way be explained by them, either through heredity or maternal impressions. This child was operated upon when a few weeks old, obliterating in great part the deformity of the lip. She is now living, a young woman of twenty; the cleft in the palate is great, and the lip is still deformed enough to destroy the symmetry of the mouth.

In 1883 another girl baby was born to them, which also had a cleft through the lip, nostril and hard and soft palates. The deformity in this infant was greater than in her sister. She was operated upon shortly after her birth and is now living, a young girl of seventeen. The cleft in the palate amounts to

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

almost the loss of the whole roof of the mouth. The lip was partially restored, but the deformity is still very great.

In 1889, as the mother approached her third confinement she became confident that her baby was to be a boy and that he would be "all right." A little later a baby boy was born, and the mother's happiness was beyond control. He showed no evidence of hare-lip or cleft palate, and was perfectly formed in every way. This child, however, did not thrive and finally, after months of illness, died of tuberculosis when nine months old. The mother's grief at the loss of this child was very great, and many were the friends on all sides who advised her not to have any more children.

In 1891, however, she became pregnant for the fourth time, and during her pregnancy was in a state of great nervous excitement because of her fear that her fourth baby would be a girl, and that it would have the same deformity. Her fears were realized, a baby girl was born, and the deformity was so terrible that the child lived only a few hours, and was never seen by the mother. In this infant the father says that "half of the child's face was gone" and that "through this opening the pulsating base of the brain could be seen."

The mother came under my observation in 1893, when she was pregnant with her fifth child. It was at this time that I obtained the foregoing history.

I saw the mother at intervals during this pregnancy, and strange to say, she manifested no nervousness as to the result. She was sure her baby was to be a boy and that he would be "all right." I attended the mother in this confinement, and when a baby boy, free from all deformity, was born, it was difficult to restrain her in her wild delight. This baby thrived only fairly well for two years, and during this time the mother's devotion to the child and fear that something might happen to him was the chief drawback to his healthful development. The baby, during his waking and part of his sleeping hours, lived in her arms, and it was almost impossible to give him the fresh air that he needed, because she was in constant dread of his "catching cold." But notwithstanding these drawbacks the child continued in fair health until shortly after he was two years of age, when he died of tubercular meningitis.

It is impossible to describe the grief of the mother at this time. For many months she lost all interest in her household

affairs, and was thought by her friends to be losing her mind. The dead boy remained her idol; she thought and talked of nothing else.

In 1895 the husband on my advice took his wife to California. In 1896 she returned from there pregnant with her sixth child. At this time she had recovered her self-control and seemed again in good health. During this pregnancy she was haunted with the same nervous fears that preceded the birth of her last girl. She was afraid this baby would be a girl and that it would be deformed, as all her other girl babies had been. I attended her in this confinement, and sure enough, her worst fears were realized. A baby girl was born, with a double hare-lip, a floating intermaxillary bone, and a complete cleft of the palate. Immediately the child was born she discovered by my manner that the worst had happened, and she went into a violent hysterical paroxysm. For a number of days after the birth of this baby she did not care to see it. The deformity was such that the baby could not nurse. It, therefore, had to be fed artificially, and the mother, quite crazed with grief and disappointment, insisted that it should be kept in another room. After the fifth day, however, she began to manifest some interest in the infant, and at the end of three weeks she was caring for it as tenderly as she had for any of the other children.

When this baby was three weeks old the intermaxillary bone was removed, the cleft palate and hare-lip operated upon, and a very good result was obtained, the deformity in great part being obliterated. This child continued to thrive until she was about eighteen months old, when she contracted tuberculosis by direct and constant exposure to this disease, and died four months later. The contagion in this instance was readily traced to a brother of Mr. A. who came to his house to die with tuberculosis, when this baby was about fourteen months old. The brother lived but a few months, and during all of this time the child was constantly exposed to the contagion, and commenced to manifest the first symptoms of tuberculosis within a few weeks after his death.

A few months later Mrs. A., who had nursed her brother-in-law and baby through tuberculosis, commenced to decline in health. For a time her husband thought her ill-health was due to grief. She continued, however, to fail in health, until she developed active symptoms of pulmonary tuberculosis.

When this occurred the family moved again to California. Here the mother lived an out-of-door life for about a year, and apparently recovered her health. All of the active symptoms of tuberculosis disappeared, and in 1900 she came home pregnant with her seventh child. I did not see her this time until a few days before the birth of her baby, at which time it was evident that she had not recovered her health completely, and was much fraailer than she had been in her previous pregnancies. She was, however, in the happiest frame of mind, notwithstanding the tragedies with which her life had been filled. At this time again she was sure that she was to have a boy, and that all would be right. She received a few days before her confinement a letter from an aunt telling her how terrible was the responsibility she was taking in bringing children into the world, when the chances were that they would be deformed. But notwithstanding such influences as these, she remained sublimely confident of the result, and during her labor manifested not the least nervousness or anxiety. A perfect boy baby was born, and when she was thus informed she received the news with as little excitement as any other mother might. During this pregnancy at least she had such faith in her "presentiment," that when a boy was born she manifested only the natural pleasure of a mother at a time like this.

This boy is now two months old and is thriving fairly well, but the mother herself has developed an active pulmonary tuberculosis and is now preparing to leave for California for the third time.

The above family history is not only extremely interesting, and terribly tragic, but I think it is also quite unique in some of its features, and presents some problems in heredity which it is difficult to solve. And while it is not my intention to attempt this solution, yet I wish to call attention with emphasis to the following facts:

There is no family history of hare-lip or cleft palate, but the mother has a high-arched palate. There is a very bad family history of tuberculosis.

The four girls all had cleft palates and hare-lips.

The three boys were entirely free from this deformity.

The first and second boy died of tuberculosis, and the third, an infant now two months old, has not as yet lived long enough to contract this disease.

Only one of the girls died of tuberculosis, and in that instance the contagion was so direct and so great that it would have been almost impossible for any predisposed child to escape.

There was at no time any claim on the part of the mother that maternal impressions had played any role in producing these deformities. The deformity of her first-born was a great surprise and sorrow to her and caused her to look forward with fear and dread to the birth of her second child, which was also deformed; but notwithstanding this experience she expected with much confidence that her third child would be a boy and not deformed, and this expectation was realized, but the birth of the fourth child, which was deformed, was looked forward to with dread.

Of her last three pregnancies I can speak from personal observation and have no hesitancy in saying that during the fifth and seventh pregnancies Mrs. A., was quite confident that boys would be born and that they would be without deformities, and this confidence gave her composure, but during her sixth labor she was nervous and had to exercise considerable self-control to keep herself from becoming hysterical over the fear that a deformed girl baby would be born to her.

The mother herself does not believe that her self-control and confidence in the result had anything to do with the sex or deformities of her children. On the contrary, she believes that in some intuitive way she was informed during her third, fifth and seventh pregnancies that her babies would be boys and that they would be "all right." This intuitive knowledge grew with her experience and was the cause of her composure during these pregnancies, but it had nothing to do with influencing the result.

In connection with this history the following quotations will be of interest because of their bearing on the etiology of hare-lip.

In Guy's Hospital Reports, 1861, it is stated that "hare-lip occurs more commonly in boys. Forty-seven cases are reported, 30 boys and 17 girls; of these same cases 21 were simple hare-lip, 10 boys and 11 girls; 5 of the cases had fissures of the hard palate, 3 boys and 2 girls; 17 of these cases had hare-lip and a complete fissure of both palates, 13 boys and 4 girls. There were also 4 cases of double hare-lip, all in boys.

It will be noted that in these cases the more severe the deformity the greater the preponderance of boys."

In St. Thomas' Hospital Reports, 1876, it is stated that in most cases there is no history of heredity. Yet a few exceptions are given. Two sisters, one with a simple cleft and the other with a double hare-lip, had a grand-aunt with a cleft palate. In another instance a father and child had cleft palates. In this family there were three normal children. In another family the father and two children had cleft palates, and a third child had hare-lip.

Samuel D. Gross* says "hare-lip is sometimes associated with other congenital mal-formations. I have witnessed its co-existence with club-foot, bifid-spine, scrotal hernia and deformities of the hands and fingers." Concerning the sex Gross says, "I have seen it as often in one sex as in the other." He also quotes a case communicated to him by Dr. Lightfoot, of Kentucky, in which this malformation has shown itself in four successive generations.

Francis Mason† in a comprehensive review of the subject of hare-lip says: "There has been much speculation as to the causes of hare-lip. As a rule it is attributed to some shock or impression made upon the mother during pregnancy. Sir Wm. Ferguson, with many others, puts no faith in such views, and adds that he has often detected a partial defect in the upper lip and jaw of one or both of the parents, and since he directed my attention to this point, I have observed it in many instances.

"I am myself somewhat slow to believe in the theory of maternal impressions, but I may allude to a case in which the coincidence was so great as to leave little doubt that such impressions may have some influence in producing the deformity.

"In November, 1874, a child with single hare-lip was brought to me at St. Thomas' Hospital. The mother stated that while she was riding in an omnibus she was shocked at the appearance of a boy who had had hare-lip and who had been operated on in early life. She had only been married a month, and spoke to her husband, mother and sister of her fear that if she had a baby it might have hare-lip. When the child was born her first inquiry was, 'Is he all right, or has he got a hare-lip?'

Again, in one of Dewar's cases of hare-lip the mother of

* System of Surgery.

† St. Thomas' Hospital Reports, 1875.

the child resided previous to her marriage near a boy who had been operated on for hare-lip, and she was perfectly familiar with the child's appearance. Soon after she became pregnant with her second child she was strangely impressed with the idea that her infant was to be born deformed.

"Hare-lip seems in many instances to be hereditary, for it is not very uncommon for a surgeon to operate on two or three members of a family. Liston operated on four, and in a case of mine a mother and child were both successfully operated on for hare-lip.

"Demarguay related a case at the Surgical Society of Paris, in which, from the grandparents downward, eleven children have been born with hare-lip. The same surgeon refers to the case of an infant affected with double hare-lip, whose mother had the same deformity. This woman had seven children, four of whom had hare-lip.

"A correspondent in the *British Medical Journal* also states that in his family hare-lip has been handed down from one branch of the family to another for the last hundred years. Dr. Bellingham, of Dublin, operated upon two brothers, whose relations on both sides had been similarly affected, and these were all males; thus their father's grandfather had hare-lip, and a second cousin of their father's was similarly affected. On the mother's side two of her second cousins, both boys, had hare-lip."

William Rose in his excellent monograph, "On Hare-lip and Cleft Palate*" says:

"As to the etiology of these defects, but little is known. Heredity is an undoubted factor in their production, and an investigation of the family history will in many cases elicit a confirmation of such an idea. Thus in two instances in my own practice I have been able to determine that the father, grandmother and great-grandfather had all suffered from hare-lip to a greater or less extent.

"An examination of the parents' mouths should always be made, and very commonly it will be found that one or both possess a short upper lip and a high arched narrow palate. In others there is a slight groove in the alveolar process between the central and lateral incisors. I have also observed a small symmetrical crease on either side of the medium line in the

* London, 1891.

upper lip, indicating a tendency to, if not a natural intrauterine cure of, a double hare-lip.

"The so-called maternal impression is looked on, especially by the laity, as another common cause of these deformities. Medical men will usually receive histories of such with a smile of incredulity, and rightly so; but some recorded cases are so definite that to condemn such an explanation too dogmatically seems scarcely to indicate a scientific spirit.

"Manley reports a case of a child born with hare-lip. The mother of this child, when four months pregnant, was startled by a boy running into her arms, from whose face blood was streaming. She saw a cut in the left side of the upper lip extending through its substance into the nostril, laying bare gums and teeth. She turned faint with fright, and could not banish the thought even after reaching home.

"The union of the parts entering into the formation of the palate, alveolus and lip is normally completed by the eighth to the tenth week, and when once this has occurred, no maternal impression (such as seeing a gashed lip) could, as far as we know, bring about a retrogressive change. Should some shock occur to the mother prior to that period, we can fully appreciate the possibility of its interfering with a typical growth of the parts then being produced. That a severe shock to an infant may produce coincidentally a lamellar cataract and defective development of dentine is well recognized; that a similar type of shock acting on the mother should result in defective union of parts, developing at that period in the foetus, is not strange, but that the real shock and the so-called maternal impression are one and the same, is more than doubtful."

Protargol to Prevent Ophthalmia of the New-Born.—

Protargol is recommended by Piotrowski (*Centralbl. f. Gynäkol.*) as the best preventive of suppurative inflammation of the eyes of the new-born infant. After cleansing the eyelids with a 3 per cent. solution of boric acid, a 10 per cent. solution of protargol should be applied, especially to the conjunctival sac, being dropped from a glass dropper. In a series of 1,030 cases thus treated, there was not one instance of blennorhoea, and only 1.2 per cent. of cases of secondary catarrh. A stronger solution increased the percentage of secondary catarrh. Such inflammation of the eyes occurs mostly after prolonged labor and artificial delivery, or after head presentation due probably to hyperemia of the head.—*American Medicine.*

GENERAL SUBCUTANEOUS EMPHYSEMA COMPLICATING PNEUMONIA.*

BY SAMUEL PIERSON, M.D.,

Stamford, Conn.

AND WALTER LESTER CARR, M.D.,

New York.

The condition of general subcutaneous emphysema is so rare that the following case seems worthy of record.

The child was under the care of Dr. Samuel Pierson, of Stamford, Conn. The history is as follows:

W. R., aged four years and five months, had never had any illness except measles when he was three years and a half old. He was nursed until eighteen months of age, walked at fourteen months and dentition began in the eleventh month. He was always active and was considered a healthy child.

The family history was good, except that the mother's mother died of tuberculous lung disease.

The illness here reported began on January 29, 1901, with an acute pneumonia at the base of the right lung. This extended until it involved all of the lower and middle lobes, and probably part of the upper. The left lung became inflamed soon after the right and the process extended almost to the apex. The general course of the disease was satisfactory and the right lung was undergoing resolution when, after a coughing attack on February 11th, there was noticed a swelling on the right side of the neck and face. This swelling increased until it involved all of the neck, head, trunk and upper extremities. The eyelids were so swollen that the eyes could not be seen. The general appearance of the face was that of an edema, except that there was no waxy color of the skin.

On February 15th his condition was serious. He sat upright in bed, breathing rapidly, the respirations being 60, pulse 135, and the temperature 101° in the rectum. His cough was very

* Read before the Section on Pediatrics, the New York Academy of Medicine, May 9, 1901.

severe and at times almost paroxysmal. The expectoration was frothy white with yellowish streaks through it. On examination crepitation was found all over the head, face, neck, chest (front and back), abdomen, and on the thighs in Scarpa's triangles. The backs of the hands were puffy and crepitant, and there was a considerable amount of emphysema of the arms. The greatest swelling, however, was over the face and trunk. In front this was somewhat limited by the free border of the ribs, but it extended over the abdomen on either side of the linea alba, giving an appearance of a general depression of the middle of the abdomen. The swelling was limited by Poupart's ligament, except in Scarpa's space.

There was some recession on inspiration. Percussion over all the body gave a tympanitic sound, and the pressure of the hand produced a crackling. The emphysematous character of the percussion was especially noticeable over the chest. Auscultation was very difficult, owing to the superficial crackling, but it was possible to detect the air entering the lungs and to hear the soft râles of resolution. There did not seem to be anything to indicate that the right lung was compressed by a pneumothorax.

During an attack of coughing the tension of the emphysema, especially in the neck, was very much increased, and the circulation was somewhat impaired. The color of the mucous membrane of the mouth was pale and did not become blue. The heart action was good and did not indicate any disease. The pulse was soft and showed some effect from stimulation. The kidneys were acting well and the urine was normal. The tongue was heavily coated and the bowels were constipated.

An examination of the sputum by Dr. M. Wollstein showed the presence of encapsulated, lance-shaped diplococci, staphylococci, and many bacilli; tubercle bacilli were, however, absent.

The emphysema remained at its height for about five days, during which time both lungs cleared up. The swelling gradually decreased during the next three weeks and the boy was discharged cured just one month after onset of the emphysema and six weeks after that of the pneumonia.

The treatment, stimulation with strychnin, nitroglycerin and whiskey, was directed more to the primary disease than to the emphysema.

While isolated cases of generalized emphysema of the subcutaneous tissue have been reported for many years (Vitry, 1827; Menière, 1829), the condition was first accurately described by Roger and by Guillot, the latter having collected 19 cases, of which 14 were fatal. Seven occurred with pertussis, 5 ending in death and 2 in recovery.

Burtaum's case, complicated pertussis and recovered.

Pooley also saw a case with pertussis in a six months old baby, of whom he lost sight before the result was ascertained.

Rachel reported a fatal case which developed during a pertussis paroxysm in a child four years and ten months old.

Hodge was able to obtain an autopsy on a case complicating pertussis in a three-year-old child. He found that the areolar tissue at the root of the left lung and of the mediastinum up to the neck was infiltrated with air, as was the sub-pleural tissue; while there were several large emphysematous blebs on the surface of the lung.

Cadet de Gassicourt observed a girl five years old, with stridulous laryngitis and bronchopneumonia. To the convulsive attempts at respiration was ascribed the appearance of subcutaneous emphysema over the upper two-thirds of the anterior surface of the thorax. Spontaneous recovery resulted after the dyspnea had persisted for thirteen days.

Fulton's case complicated measles with catarrhal pneumonia, and the emphysema involved the face, neck, trunk and arms to the wrists. Death was due to an exacerbation of the pulmonary symptoms three days after the emphysema had reached its maximum.

In Felsenthal's patient the emphysema appeared six weeks after measles, the cough having persisted since that attack.

Zeinemann-Lange saw a case complicating capillary bronchitis; it was cured in eighteen days.

Baginsky and Damsch each observed a case occurring with broncho-pneumonia.

Gaillard's cases are interesting, because all three occurred in the same family and followed measles. He ascribes them to an inherited weakness, increased by an attack of pertussis, from which the children had recovered.

Henoch reports a case which developed during pertussis in a phthisical child.

In Cotton's interesting case of a girl seven and a half years

old, the emphysema was probably due to tuberculous disease of the lungs; the child died.

Wrinch's case was that of a six-months-old baby with a phthisical father; the infant had coughed since three months old. Death occurred six days after the swelling was first noted, and the autopsy showed a left-sided pneumothorax and tuberculosis of the lungs and liver.

Excluding emphysema following traumatism, the majority of cases of subcutaneous emphysema complicate pertussis and pneumonia. By far the greater number end fatally. As Cadet de Gassicourt has pointed out, the chief danger from this affection lies in its ability to aggravate the conditions in which dyspnea from other causes exists. Biermer says that for recovery it is necessary that the rupture be not too large and that the perforation close as rapidly as possible. Resorption may be rapid, but it is usually slow, extending over weeks. According to Shattuck, "this form of emphysema cannot be said to require treatment."

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Clinical Note.

COUGH IN INFLUENZA SIMULATING WHOOPING-COUGH.

BY ALFRED FRIEDLANDER, M.D.,

Cincinnati, O.

In ARCHIVES OF PEDIATRICS for November, 1900, there appeared an article by Dr. F. Forchheimer on "Cough in Influenza Simulating Whooping-Cough." Since my attention was called to this condition, I have observed it on several occasions. Recently I had a very typical case under observation in an infant of eight months. The attack of influenza was quite characteristic, though no bacteriological diagnosis was made. Following this, there came a paroxysmal cough, without whoop, without physical signs in the chest. The paroxysms were moderately severe, occurring by day and by night to the number of about ten in the twenty-four hours. Occasionally there was vomiting, but, naturally enough in an infant of this age, no expectoration. There was no ulcer of the frenulum.

It occurred to me that it might be interesting to examine the blood, to see whether any changes, analogous to those found in pertussis would be present.

Menière* showed that in pertussis, during the paroxysmal stage, there was usually a slight leucocytosis and always a relative lymphocytosis. In this case a differential count showed,

Small lymphocytes 53.53 per cent.	}	Lymphocytes 69.6 per cent.
Large lymphocytes 16.10 per cent.	}	
Polymorphonuclears 30.09 per cent.		
Eosinophiles 0.19 per cent.		

In other words, taking the lymphocytes as a group, they formed 69.6 per cent. of the white cells of the blood, the polymorphonuclears being reduced to 30 per cent. Of course, in

* *Archiv. d'Maladies de l'Enfance*, April, 1898.

infancy the percentage of lymphocytes is always higher than in adult life, but such a percentage as 69 is certainly not normal. Judging from the dried specimen that was a moderate leucocytosis, an accurate blood count could unfortunately not be made.

So that in this particular case of pertussoid, or pseudo-pertussis, there was just the condition of the blood that we find in pertussis. That the condition was a true pertussis would seem to be very unlikely, judging by its clinical course alone, for in a week the child was perfectly well, small doses of antipyrin and bromid of potash having been given for the cough.

Hypodermoclysis in Pediatric Practice.—*Hollopeter (Philadelphia Medical Journal, December 7, 1901,)* states that while hypodermoclysis has found its field of greatest usefulness in the hands of the surgeon to combat shock, uremia, toxemia and various acute surgical procedures, the physician has also found it a remedy of great power in a variety of other cases. The writer has found it of great service in ailments of early life. In afebrile cases, as in general atrophy and wasting after infectious diseases, the solution should be at least 115° or 120° , and delivered to the tissues at 106° . A large hypodermic syringe may be used in very young children. After the syringe is sterilized by boiling, it is filled with the normal saline solution of the proper temperature and may be injected into the flanks, inner surface of the thigh, above the knee, or on the outer aspect of the leg. Local anesthesia may be used. The quantity injected has usually been too large. The writer has seen marvellous results follow the use of one or two ounces. It has been found useful in the following diseases: anuria usually found in the first three weeks of life, due to deposit of uric acid crystal in the tubules of the kidney; various forms of uremic coma in the nephritis following the infectious diseases; shock caused by intestinal intoxication; depression following any acute febrile disorder, and atrophy following malnutrition. In syphilis and tuberculosis it aids very materially the use of other means.

ARCHIVES OF PEDIATRICS.

FEBRUARY, 1902.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

VACCINATION AND TETANUS IN CAMDEN.

The physicians of Camden, N. J., have been put on the defensive as champions of vaccination by an opposition far better grounded than any previous one. So destructive a complication of vaccination as tetanus has caused the death of seven children and the antivaccinationists have argued from this fact that vaccination is dangerous to health and life.

In the history of vaccination the occurrence of tetanus is unusual and infrequent, and it therefore requires no extraordinary evidence to prove, once again, that a properly conducted vaccination in modern times is in every sense a safe procedure. At Camden there was an infection so *en rapport* with the bacteriological teachings of the day that the presence of the bacillus of Nicolaier in the virus utilized was at once assumed both by enemies and defenders of vaccination.

The special committee of the Board of Health of Camden proved, through the report of the state bacteriologist, that not one of the marketed preparations of vaccine virus contained the tetanus bacillus. The physicians testified that they had applied the principles of surgical cleanliness in the performance of this minor operative procedure. The factor, however, that could not be reckoned with was the personal equation of the vaccinated individuals. It is not shifting the burden of proof to assert that in the lower walks of life, where surgical cleanliness is not understood, vaccination complications are oftenest encountered. The vulnerable point in the conduct of vaccination is that not enough care is bestowed on the resulting lesion which calls for the same surgical treatment as any other site where infection may take place. Certainly every vaccine pustule is in itself a mixed infection of varying degree of virulence.

The investigating committee finally concluded that telluric conditions explained the prevalence of this tetanus epidemic and what lends additional color to this interpretation is that an instance is placed on record of a boy resident of Camden, not vaccinated, the victim of a gun-shot wound, who died of tetanus during the epidemic in question. In this connection we must recall the transient epidemics of tetanus that are some years after the infliction of toy-pistol wounds incident to the Fourth of July celebrations and totally absent for many years thereafter. With the documents in evidence before us fortuitous conditions only can account for the tetanus fatality associated with vaccination at Camden and other localities.

In public opinion we find the strongest defenders of the faith in vaccination, as evidenced by the rally to be vaccinated when there is a cry of small-pox ; and here is an opportunity to point out to laity and physician alike wherein the safety of vaccination can be enhanced. Public vaccination should be indulged in more generally at all times of the year, and not spasmodically in moments of exigency when wholesale vaccination is prone to engender the greatest degree of carelessness.

Then in turn the physician should practice surgical cleanliness of the highest order preliminary to vaccination and following the development of the lesion. State and municipal control of the vaccine material is a subject that is yet *sub judice*. In the meantime, however, private industries should deliver their goods in sealed packages, guarded against outside contamination, and no vaccine point or tube should be used for more than one person.

To allay any doubt as to the efficacy of vaccination, the Camden committee has appended a report from the U. S. Army showing that tetanus, which is common in Porto Rico, has not followed vaccination since the introduction of American methods.

"Lymphoid Hyperplasia in Children" will be the subject of discussion at the meeting of the Section on Pediatrics of the New York Academy of Medicine on the evening of Thursday, February 13th. Short papers will be read as follows:

"The Pathology of Adenoids and the Tonsils." Dr. A. J. Lartigau. "Operative Treatment of Adenoids and Enlarged Tonsils" Dr. W. K. Simpson. "The Lymphatic Constitution." Dr. James Ewing. "Notes on the Surgical Treatment of Enlarged Lymph Nodes." Dr. C. N. Dowd. The papers will be discussed by Drs. A. Jacobi, W. P. Northrup and J. Wright.



MR. WILLIAM H. TREAT, vice-president and treasurer of E. B. Treat & Co., publishers of ARCHIVES OF PEDIATRICS, died suddenly of pneumonia on December 27, 1901, at his home at Mount Vernon, N. Y.

Mr. Treat was born on January 30, 1868, and was educated at the College of the City of New York and at Wesleyan University, Middletown, Conn. He had been identified with the firm of E. B. Treat & Co. for twelve years. He had a large circle of friends among publishers and physicians all over the country and was favorably known to a great many business men in this and other cities.

Mr. Treat was a member of the Phi Delta Theta Fraternity and of the Society of the Sons of the Revolution.

A widow and three children survive him.



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A Treatise on Feeding and Nursing the Baby, for Mothers and Nurses. By Charles Douglas, M.D. Professor of Children's Diseases and Clinical Medicine in the Detroit College of Medicine, etc. Detroit, Mich.: Baby Book Company. 1901. Pp. xxiv.-611. Illustrated.

Of the making of books for mothers there seems to be no end. There must be a demand for them or else they would not be written.

Dr. Douglas is a physician of experience, and in the volume he entitles "Feeding and Nursing the Baby," he considers not only the subjects implied by his title, but also the condition of the pregnant woman and what provision she must make for her expected infant.

In the third chapter the author deals with the first food of the infant and his advice is sound. The responsibility of the baby's health is held to be due to the care that the mother gives it from the moment of birth. The directions for feeding are excellent.

In the matter of foods for infants who cannot get breast milk the suggestions are commendable. All proprietary articles and condensed milk are condemned and the disadvantages and dangers of a continued use of sterilized and pasteurized milk are shown. The necessity for clean milk is forcibly impressed upon the reader.

A large part of the book is devoted to the common diseases of childhood. The diagnosis of a number of these disorders is not in the province of the mother, but of the physician, and their omission would not lessen the value of the work for the general reader. The prescriptions also could be omitted as medicinal treatment should be suggested by a medical man and not by a mother.

Although the volume is more extended than seems necessary, the advice is sound and nurses and mothers who read it will gain a thorough knowledge of the care of infants and children.

The type is clear but too large, and the paper is so heavy that the book is cumbersome.

The Century Book for Mothers. A Practical Guide in the Rearing of Healthy Children. By Leroy Milton Yale, M.D. Formerly Lecturer on the Diseases of Children at Bellevue Hospital Medical College, New York, and Gustav Pollak, Editor of "Babyhood." New York: The Century Company. 1901. Pp. xvi.-461. Price \$2.00.

In the preface the authors state that they have endeavored to keep in mind two queries: What ought an intelligent mother to know, and beyond that, what would she wish to know, regarding the care of her child? In answering these queries the authors believe that the mother should understand hygiene rather than the treatment of diseases; in other words, they consider it best to educate her to be a judicious guardian of the nursery, rather than to tempt her to play the physician, and to dabble in dosing. The first part of the book is devoted to the subjects connected with the care and general hygiene of the child, but some allowance is made for mothers anxious to know the symptoms of disease and the second part of the work is based on inquiries made by the mothers regarding the evidences of disease.

The first part of the book is eminently satisfactory and there is hardly any exception to be taken to the general directions for the food, clothing and management of infants and children.

The value of the two hundred and fifty pages of questions and answers making up the second part of the volume is, however, rather problematical. It does not seem necessary to answer a mother who regrets that physicians know no more of whooping-cough than they did fifty years ago. Nor is it important to take up half a page to soothe a parent who worries because her baby has bright eyes. A great many of the queries were proper enough in personal communications, but they are not needed in a book issued for the public.

The volume is so comprehensive and the directions so practical that, with the exceptions above noted, it is recommended as a helpful and useful guide to every mother who wishes to be an intelligent guardian of her children. The make-up of the book is excellent.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN—
LONDON.

Meeting of November 15, 1901, at 11 Chandos Street, London, W.

MR. ROBERT JONES, OF LIVERPOOL, CHAIRMAN.

DR. DAVID WALSH showed a girl aged fourteen years, who had suffered for three months from pain referred to both loins, but more particularly to the left one. On examination there was a tumor, dull to percussion, occupying the left flank and left lumbar region. An X-ray plate showed a large opaque band reaching from the kidney to the pelvis, with a small stone in the pelvis. Upon the foregoing grounds a calculus, impacted at the lower end of the ureter causing hydronephrosis, was diagnosed.

MR. R. CLEMENT LUCAS suggested that before the patient was operated upon the girl should be examined per vaginam under the influence of a general anesthetic.

MR. SYDNEY STEPHENSON showed a child, aged seventeen months, who had been brought to him with a small

ULCER INSIDE THE LOWER LID OF THE RIGHT EYE.

The ulcer measured 7x5 mm. and its base was somewhat lardaceous and nodular. The child was thin and the inguinal cervical lymph nodes were prominent. There were several small circular ulcers on the buttocks. There were moist sounds over the back of the chest, a question of bronchopneumonia. A diagnosis of tubercle of the conjunctiva was made and the child was admitted into the North Eastern Hospital for Children on October 23, 1901. Tubercle bacilli was found in scrapings from the conjunctival ulcer. On November 13 there was a retraction of the head, double optic papillitis, and a typical tubercle in the choroid of the right eye. The tubercle lay not far from the optic disc to the inner side of the latter, had a fawn color and a circular outline and was about half as big as the optic disc. The child's temperature was irregularly febrile.

MR. SYDNEY STEPHENSON regarded the case as one of acute miliary tuberculosis with cerebral pulmonary conjunctival and choroidal manifestations.

MR. GEORGE PERNET thought that the conjuncional condition answerd to the tuberculous ulcer, which was sometimes found about the margin of the lip.

DR. C. O. HAWTHORNE inquired whether Mr. Stephenson regarded the condition of the optic discs as indicating the existence of tuberculous meningitis or tuberculous intracranial tumor.

MR. STEPHENSON, in reply, said the neuritis had the appearance of a so-called tumor-neuritis or choked disc, but he thought the probabilities pointed to a tuberculous meningitis rather than to a tuberculous tumor as the cause of the neuritis.

DR. C. O. HAWTHORNE showed a boy, aged six years, with considerable

ENLARGEMENT OF THE LYMPH NODES OF THE NECK

with a similar but less marked condition of the axillary lymph nodes. The enlarged lymph nodes, were non-adherent, readily separable and free from tenderness or other evidences of inflammation. Liver and spleen possibly a little enlarged. The blood showed no excess of white corpuscles, but a relative increase of lymphocytes.

DR. HAWTHORNE considered the case to be one of Hodgkin's disease.

DR. A. E. SANSOM remarked that there were râles at the base of the patient's lungs, which were very unusual in disease of that kind.

DR. ROBERT HUTCHISON suggested the case was not one of Hodgkin's disease, but of tuberculosis of the lymph nodes. Indeed, he doubted whether there was such a condition as Hodgkin's disease at all, and whether all such supposed cases were not simply tubercle. The only criterion was to remove a portion of a lymph node and to stain for tubercle bacilli or to inoculate an animal with the fragment. He was convinced that the blood condition was of no assistance in the diagnosis.

MR. GEORGE PERNET was inclined to agree with Dr. Hutchison's diagnosis.

MR. LUCAS could not admit that Hogdkin's disease was non-existent.

DR. HAWTHORNE, in reply, held that, if the usual clinical landmarks held good, his was a case of Hodgkin's disease. The character of the enlargement of the lymph nodes was different from that of tubercle.

DR. GEO. A. SUTHERLAND and MR. J. JACKSON CLARKE showed a child, aged two years, with

MARKED SHORTENING OF ALL THE LIMBS, SIX DIGITS ON EACH HAND,
SLIGHT HARE-LIP AND CONGENITAL HEART-DISEASE.

They suggested that an achondroplastic condition was present.

DR. ROBERT HUTCHISON remarked that the case bore an extraordinary resemblance to one he had himself shown at the last meeting of the Society. Both had extra digits, absence of the gums, congenitally abnormal heart and a peculiar shortness of all the extremities. He was still unprepared to call it achondroplasia. He might add that the mental condition of his patient was good.

MR. G. PERNET pointed out that the hair on the patient's scalp was very scanty; there was also an absence of eyebrows and the lower lashes were missing.

DR. SHUTTLEWORTH inquired as to the family history. He thought the patient was distinctly behind children of the same age mentally.

DR. EDMUND CAUTLEY showed the heart of a girl, aged fifteen years, who had had

PULMONARY REGURGITATION

and had died from hemoptysis. The patient had had rheumatic fever two years previously. Five months before death she was under treatment for a febrile attack and had a diastolic pulmonary murmur. She recovered in a fortnight and remained fairly well for three months. During her last illness, of two months' duration, she had a variable amount of pyrexia up to two weeks before death and frequent attacks of hemoptysis. The physical signs consisted of hypertrophy and dilatation of the right side of the heart with a loud diastolic murmur in the second to the fourth left intercostal spaces, close to the sternum. There were no thrill and no sign of pulmonary stenosis, except that the girl was high colored. The heart weighed 11 oz., and was firm and globular. The right ventricle was much hypertrophied. The

pulmonary valves were much thickened and puckered. On two of them were large, warty vegetations with apparent loss of substance. All the other valves were normal. The left lung weighed $16\frac{1}{2}$ oz., and contained large infarcts. In the right lung there were several small infarcts. The liver showed early nutmeg change. The spleen weighed $6\frac{1}{2}$ oz.

Cases of pulmonary regurgitation are rare and are commonly associated with infective endocarditis or with pulmonary stenosis. In this patient there was undoubtedly pulmonary stenosis although no murmur indicative of the lesion was heard during life. There was also an acute endocarditis of the pulmonary valves, but it was not clear that this was of the infective variety. Some of the symptoms indicated that it might have been of rheumatic origin.

DR. THEODORE FISHER thought the case was one of chronic endocarditis, a view shared by Dr. Arthur E. Sansom.

DR. CAUTLEY, in reply, said the bleeding might have been either hemoptysis or hematemesis, and had been explained on the assumption that there was cardiac failure. He agreed as to the endocarditis. He thought the case started at a congenital pulmonary stenosis and that later, as the result of rheumatism and some infective process, there had been endocarditis limited to the pulmonary valves.

MR. W. GIFFORD NASH showed the kidneys from two children of the same family, whose ages respectively were ten weeks and six months. The kidneys were

THE SEAT OF CONGENITAL CYSTIC DEGENERATION,
and the enlargement in each case was noticed shortly after birth.

DR. THEODORE FISHER asked whether it was frequent for children to live weeks or months with congenital cystic kidney.

MR. NASH, in reply, said he was under the impression that some of the cases reached adult life.

MR. J. HOWSON RAY showed specimens and sketch illustrating a case of

CONGENITAL UMBILICAL HERNIA OF THE SIZE OF A FETAL HEAD
occurring in the Children's Hospital, Manchester.

DR. CAUTLEY read a paper on
THE ETIOLOGY AND MORBID ANATOMY OF TUBERCULOUS MENINGITIS,
based on the post-mortem and clinical records of the last 27 fatal

cases under his care. Twenty-two occurred in children under five years of age, and only 5 during the next five years of life. Three were infants under one year of age. A family history of tuberculous disease was only present in 5 cases. The influence of heredity might be summed up as consisting of exposure to infection of weakly or predisposed children. In only two instances was the disease limited to the meninges. In 23 the mediastinal glands were caseous, and in 4 of these the mesenteric glands were also affected. In the other 2 there was no note as to the condition of the glands. Injury was a possible exciting cause in only 1 case. All the evidence was strongly confirmatory of the view that the main channel of infection was the respiratory tract and opposed to the view that infection could have been acquired from the consumption of tuberculous milk. In twelve instances there was old or advanced tuberculous disease of the lungs. In 9 others the lungs were involved. Two of the instances in which the mesenteric glands were caseous could be easily explained as the result of intestinal infection by swallowed sputum. One of the cases in which the tuberculous process was limited to the meninges depended upon caries of the cribiform plate of the ethmoid.

DR. CAUTLEY summed up his views shortly as follows: Inheritance means exposure to infection. Injury is very rarely an exciting or predisposing cause. The respiratory tract is the great channel of infection. The alimentary tract is rarely primarily infected. Tuberculous milk is rarely, if ever, the source of infection. Limitation of the disease to the meninges is very rare. The prognosis is very hopeless on account of the extent of the tuberculous disease elsewhere. The evidence obtained from the examination of the brain shows that operative treatment may be discarded as experimental rather than useful.

DR. SUTHERLAND agreed with the views expressed by Dr. Cautley, particularly as to the current statements with regard to the prevalence of *tabes mesenterica* in early life. As to the alimentary canal, if the child had been properly fed he thought the risks of tuberculous infection in that way were not great.

DR. THEODORE FISHER said that at a dairy near New York 40 cows were found to be tuberculous, and they were all killed; but of the thousands of children who had consumed the milk, only one was tuberculous, and it was not certain that it came

from that source. His own experience fully bore out that of Dr. Cautley.

DR. WILLIAM PHILLIPS asked whether Dr. Cautley had had any experience of tubercle, having been disseminated through carious teeth. He had suspected such a source quite apart from alveolar abscess. He thought one case of tubercular meningitis might have occurred in that way.

DR. CAUTLEY, in reply, said he had no evidence of tubercular trouble starting from carious teeth. In every case he found definite sources elsewhere. In one instance where the disease was limited to the meninges there was caries of the cribriform plate of the ethmoid; and in another similar case it probably followed injury or infection from an old pleurisy at the right apex. There might be tuberculous lesions in the mouth, but he included them among other skin lesions.

Lumbar Puncture in Diagnosis.—J. Abadie (*Jour. de Medicine de Bordeaux*, July 28, 1901,) says that while discussion of the therapeutic use of lumbar puncture is still rife, there remains no doubt of the service rendered by this measure in diagnosis. The cerebro-spinal fluid, normally clear, is cloudy in meningitis, purulent in suppurative meningitis. Or it may be bloody, showing ventricular hemorrhage, fracture of the skull, etc. The pressure, increased in disease, was formally measured for diagnostic purposes. The freezing-point of the fluid is less than normal in tuberculous meningitis. The amount of albumin is increased in hydrocephalus, and acute meningitis. Bile pigment has been found in the fluid when excessive jaundice occurred. After the ingestion or the subcutaneous injection of potassium iodid or methylene blue, the appearance of either of these substances in the cerebro-spinal fluid shows that the pia-arachnoid has become permeable. Bacteria are easily found in it, so that the diagnosis etiologically may be settled. Lately, lymphocytosis in the fluid has been shown to denote tuberculous meningitis; while polynuclear leucocytes denote cerebro spinal meningitis. Lymphocytes are also seen in tabes and general paralysis. It will at once be recognized how important a diagnostic factor lumbar puncture has become.—*Phil. Med. Jour.*, Vol. viii., No. 20.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON PEDIATRICS.

Stated Meeting, January 9, 1902.

R. G. FREEMAN, M.D., CHAIRMAN.

CONGENITAL ASYMMETRY OR HEMI-HYPERTROPHY IN AN INFANT.

DR. A. HYMANSON presented this case, an infant of six months, whose family history was negative. The upper and lower extremities on the right side were longer as well as larger in circumference than the corresponding members on the other side. Dr. Hymanson said that he had been able to find only a dozen such cases in the literature.

DR. S. H. DESSAU remarked that he had had such a case some years ago.

DR. C. HERRMAN presented

A CASE OF SPASMUS NUTANS.

The child had developed this nodding after an attack of measles at the age of thirteen months. In addition to the nodding, the head moved upward to the left and downward to the right, and there was some nystagmus present, which could be made more noticeable by holding the head. The nystagmus was chiefly evident when looking to the left. The child was about eighteen months old and presented many and undoubted signs of rickets. He had tried the bromids in a number of these cases, but with negative result, and he now considered hygienic measures chiefly of service.

DR. LOUIS FISCHER said that he was coming to agree with certain modern teachers regarding the comparative uselessness of phosphorus in rachitis. Chemists declared that the so-called phosphorized oil, so much used by some physicians, did not contain any phosphorus.

DR. DESSAU said that he had made extensive use of phosphorus for many years, administering it in the form of the U. S. P. elixir of phosphorus. It was true that he always gave it in conjunction with cod-liver oil, yet from clinical observation he was a firm believer in the efficacy of phosphorus as a remedy in rachitis.

DR. H. S. STOKES said that he had seen a number of cases of spasmus nutans, none of which had been rachitic. They had generally given a distinct history of injury.

THE EFFECT OF HEAT UPON COW'S MILK AS AN INFANTS' FOOD.

DR. S. H. DESSAU was the author of this paper. He said that while cow's milk contained the same elements of nutrition as human milk, the relative proportions were so different as to make the two kinds of milk very different articles of diet for infants. Pediatricians had commonly overlooked the fact that when sterilized cow's milk was vomited the curd resembled that of human milk. He had found that when the temperature of milk was gradually raised by means of the double steam cooker, such as used for rice and farina, to 140° or 160° F., and kept there for ten minutes, the curd was much softer than usual. If milk were mixed with water in equal proportions, or in the proportion of one to three, this change in the character of the curd would be still more marked. The milk should not be raised to the boiling point. In practice, the best plan was to heat the milk in the steam cooker for ten minutes after the water in the outer vessel began to boil. Milk so treated would be found very digestible; moreover most of the noxious germs were destroyed in this way. There was no danger of infants fed on this milk developing scurvy.

DR. J. FINLEY BELL, of Englewood, N. J., said that if cow's milk were heated to 140° F. in a closed vessel most of the pathogenic germs would be destroyed, but we did not know as yet whether this would suffice to kill the anaerobe. Of course this heating would not destroy toxins that had already formed in the milk as a result of bacterial activity.

DR. MAX EINHORN said that in some experiments made by him some years ago he had found the coagula of milk in the infant's stomach very large even after heating the milk, and boiled milk would coagulate with the gastric juice just as quickly as raw milk.

DR. LOUIS FISCHER objected to heating milk to 212° F., or even to ordinary pasteurization on the ground that infants fed on such milk were prone to suffer much from constipation.

DR. R. G. FREEMAN said that he wished to correct the impression that the paper might give regarding the development of scurvy. The collective investigation conducted by the Ameri-

can Pediatric Society showed that it had not originally developed as a result of using sterilized milk, but largely from the use of patent foods. Sterilized milk was only responsible for 16 per cent. of the cases of scurvy. He had long ago made some experiments to determine whether pasteurization and sterilization had anything to do with the formation of curd, and had been unable to satisfy himself that the heating had any influence upon the coagulation of the milk. Heating milk to 140° F. for ten minutes would not kill the dangerous pathogenic germs to be found in milk; such a result would require that the milk be heated to at least 160° F. for half an hour.

DR. DESSAU said that he was not in favor of using sterilized milk except in the summer, and at the present time comparatively few physicians advocated its use as a daily food.

CHEMISTRY OF THE STOMACH CONTENTS IN CHILDREN.

DR. LOUIS FISCHER read this paper, based on examinations made upon the gastric contents after siphoning them off with a Nelaton catheter No. 6 or 10. The specimen was taken from the stomach while the child was lying on the back, and about two or three hours after a feeding. He had also studied extensively the vomited matter. The method of study consisted in filtering the chyle, testing for hydrochloric acid, lactic acid, propeptone, peptone and rennet, and noting the character of the coagulum. In a series of ten breast-fed infants, five had a fine curd in the stomach. Of the other five children, who were, for the most part, suffering from rachitis, syphilis or some general disorder, there was a thick coagulum three or four hours after feeding. Hydrochloric acid was present in all but two of these. Five bottle-fed infants were also examined, and it was found that matter vomited two or three hours after a feeding was usually thick, lumpy and acid. This acidity was due to lactic acid, which was present in considerable quantity, while hydrochloric acid was absent. Butyric acid was also sometimes present. There was little or no propeptone or peptone in these cases. A curious fact noted, was that while hydrochloric acid was absent in both mild and severe cases of diphtheria it returned as convalescence was established. In one case of severe diphtheria, no hydrochloric acid was present in the vomited matter until forty-eight hours after the administration of antitoxin. There was found to be a constant antagonism between the lactic and hydro-

chloric acid, the former being present at the beginning of digestion, and the latter at the completion of this process.

DR. EINHORN said that in his experiments on both breast-fed and bottle-fed infants only two had had free hydrochloric acid. Their ages had ranged from three to eighteen months. Small quantities of free hydrochloric acid were masked when milk was ingested, and that was why a test meal of roll and tea, or of some food containing very little albuminate, was preferred to milk for these examinations. While it was a general rule that hydrochloric acid was absent during fever, he had known it to be present in the stomach of adults who were suffering from typhoid and high fever. The fluctuations of hydrochloric acid in diphtheria he looked upon as nothing more than an indication of the effect of the disease upon the bodily functions. Massage of the stomach had been recommended, but he was disposed to think it was not altogether free from risk.

DR. M. I. KNAPP said that he had studied the tests for acetic, butyric, lactic and many other organic acids, and had found that these acids reacted to Congo paper and to methyl orange. Ginsberg's reagent he had found excellent. A still more delicate reagent was the ammonio-citrate of iron with potassium ferrocyanid, which formed a blue compound only in the presence of an inorganic acid. He had found no benefit from the use of massage of the stomach, indeed in 2 cases it had caused hemorrhage, and it tended in all to reduce the acidity.

DR. FISCHER closed the discussion. He said that the cases of diphtheria in which the gastric secretion had been arrested had not been marked by any high fever. He was disposed to think massage one of the most important therapeutic measures in connection with disorders of the stomach; certainly it was exceedingly beneficial in relieving infantile constipation. This procedure should not, of course, be left to the mother, but should be performed by one skilled in massage. *Nux vomica* and dilute hydrochloric acid were the drugs that had served him best in the class of cases considered in this paper. He wished it understood that the present paper was only to be considered as a preliminary communication on the subject.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, December 10, 1901.

DR. THOMPSON S. WESTCOTT, PRESIDENT.

DR. JAMES K. YOUNG exhibited a patient on whom he had done an

OPERATION FOR BOW-LEGS.

The child was a girl, five years of age, who in 1899 was brought into the Out-patient Department of the Polyclinic Hospital, for treatment for bow-legs. Braces were applied at that time, but the child disappeared from observation, and returned only recently, when the condition had decidedly increased, and it was too late for any satisfactory treatment with apparatus. An operation was at once advised. The one performed in this case was an unusual one, the Macuen operation not being used because it is likely to leave a decided prominence above the knee. The tibia and fibula were divided a little below the knee, and the leg was set in good position. The result had been excellent, the legs being practically straight on both sides, and there being no prominence or deformity resulting from the operation. The skiagraph showed separation of the bone at the point of division, the space being filled with cartilage; the operation had been done only five weeks before, and undoubtedly this will later become bony. This operation is a more difficult and a more dangerous one than the Macuen operation, and there is some especial danger of wounding the anterior tibial artery. It is, therefore, not a favorite one in this country, but is frequently done in Germany, and has the decided advantage of giving a more esthetic result.

DR. YOUNG also presented a child, three years old, that had been operated upon for acute epiphysitis of the hip joint in infancy. The child was perfectly healthy at birth, but two weeks afterward there developed in the hip joint an acute inflammation, with pain, swelling, and contraction of the joint, attended with great prostration. Two weeks later she was admitted to the University Hospital, and an incision was made by Dr. Willard. About one ounce of pus escaped. The wound was packed and drained, and in six weeks was entirely healed, with perfect motion of the joint.

The infection in these cases is identical with acute osteomyelitis, being a pyemic affection of the bone. Staphylococci usually produces this condition; exceptionally, streptococci. The disease is usually very acute, and unless treated promptly, results in destruction of the joint and in general infection, with involvement of other joints. Infection may occur through any of the mucous surfaces, through a bone wound, or through the umbilical vein.

The treatment consists in a free incision with drainage and supporting treatment. Under this, cases always recover, but fatal cases are frequently met with where treatment is not prompt and thorough.

DR. D. J. M. MILLER asked Dr. Young whether he had operated on many colored children for bow-legs. Dr. Miller was interested in the question of bow-legs in colored persons because, while one frequently observes this deformity in marked degree in negro children, negro adults appear but rarely to be bow-legged. The explanation of this he was unable to see, unless it indicates that even extreme deformities often recover without any special treatment, as the lesser ones certainly do.

DR. YOUNG, in reply, said that he had operated on a great many colored children for bow-legs, and that the condition is an extremely frequent one in negro children; but that he had also observed it in adult negroes, as well. It is commonly concealed, to a considerable extent, by the clothing; but one fact which indicates its presence is that the hands appear to come down very low, thus giving the upper portion of the body, as compared with the legs, an appearance of undue length. If one observes such a condition, it is always enough to make one suspect the existence of bow-legs or rachitic spine, even though skirts or other clothing cover the deformity. The condition is, by far, most common in negroes; next, in Italians. This child was an exception, since it was an Armenian.

DR. J. P. CROZER GRIFFITH said that the statement is often made in the earlier stages of bow-legs the curvature will correct itself, if the child is kept off its feet. Instances are reported in which a splint or other apparatus has been applied to one leg and the other left free, the patient being meanwhile kept in bed, and in which the improvement was quite as great in the free leg as in the other. His own experience has convinced him of

the great degree to which recovery can take place, but he wished to learn Dr. Young's wider experience in the matter, particularly regarding the question whether it is the application of the padded internal splint, or merely the passing of time, combined with massage and similar methods of treatment, which works the cure in these early cases.

DR. YOUNG, in reply, stated that many cases, up to a certain age, recover from the use of apparatus alone. Rickets is active as late as the end of the third year, or even later; and consequently, success may be had from treatment with apparatus up to the thirty-sixth, or perhaps to the forty-second month of life. Up to this period he regularly advises the use of splints or rest, or both, and generally has excellent results from such measures. Later apparatus gives no satisfactory results. Occasionally, patients may be seen to recover spontaneously from bow-legs, owing to increase in the strength of the muscles. As to the use of splints, he considers them extremely serviceable, and thinks that there is no doubt that they are of more value than rest alone.

DR. S. McC. HAMILL showed specimens of
THROMBOSIS OF THE SUPERIOR LONGITUDINAL SINUS, WITH INFARCT
OF THE KIDNEY;

and also exhibited a case of

CHRONIC HEART DISEASE WITH SEVERE RENAL SYMPTOMS.

The patient from whom the first specimens were obtained was a female child aged three years. She was born at full term after a long and tedious labor. She was healthy at birth, but lost weight steadily for the first three days. The temperature was elevated from birth, reaching 105° on the sixth day. On the fifteenth day she had a large hemorrhage from the bowel and some bleeding from the umbilicus. The cord was detached on the day preceding the hemorrhage. The temperature became elevated; the child emaciated rapidly and became cyanotic. Meningeal symptoms developed on the seventeenth day. She developed a purpuric eruption over the flexor surface of the arms and over the shoulders. On the twentieth day she had a second hemorrhage from the bowel, after which she became comatose, her breathing grew irregular and labored, and she died on the following day.

The autopsy, made twenty-three hours after death, showed, as the principal lesions, marked congestion, and in some areas,

hemorrhage into the mucous membrane of the intestine; a small hemorrhage into the left suprarenal capsule, some congestion of the right, and a hemorrhagic infarct of the right kidney. The umbilical vessels were filled with clots. There was thrombosis of the superior longitudinal sinus and extreme congestion of the vessels of the pia, especially those adjacent to the sinuses. Cultures made from the umbilical artery, the spleen and the heart-blood, showed a pure culture of a short, rod-like bacillus, the nature of which had not been determined.

The second case was a child, Letta C., aged three years and seven months, with a family history of rheumatism and tonsillitis. She had had measles, mumps, and pertussis, and frequent sore throats, but no distinct history or rheumatism. She had been dyspneic and had had disturbed digestion for six months; and for a year the mother had noticed that the child's heart beats were unusually violent. Recently the dyspnea had become more marked, especially on lying down. Her abdomen had enlarged, her urine had become scanty and dark brown in color, and she had some puffiness of the face.

Physical examination showed the cardiac apex beat in the sixth interspace, half an inch outside of the nipple line; a forcible impulse; no thrill; an area of deep dulness at the second rib, half an inch to the right of the sternum, one-and-one-half inches outside of the mid-clavicular line. Auscultation at the apex showed a loud, long, rather high-pitched blowing, systolic murmur, heard at the axilla and the angle of the scapula, as far anterior as the median line, and as high as the fourth rib. There was a rough, rumbling murmur just before this sound, heard over a limited area at the apex. The first sound was loud and sharp. The pulmonary sound was accentuated.

Examination made ten days later showed the apex in the fifth interspace in the midclavicular line; the upper border of dulness at the second rib; the right border, a finger's breadth to the right edge of the sternum; the left border, a finger's breadth to the left of the midclavicular line. Auscultation showed no presystolic murmur, but a loud, sharp, mitral sound, followed by a rather low-pitched, distinctly musical murmur.

The urine analysis on admission showed a specific gravity of 1022; albumin present, one-third by bulk, microscopically, blood and epithelial casts in abundance. On December 9th, the specific gravity was 1011; there was no albumin present, and

very few granular and epithelial casts. The case was thought to be one of post-natal endocarditis, probably the result of infection from the frequent sore throats, and was of interest on account of the early age of the child, the extremely large heart, and the rapid subsidence of the dilatation and kidney symptoms under treatment.

DR. GRAHAM, in discussing the heart case, thought the condition to be post-natal, in all probability, rather than ante-natal, because it was exclusively left-sided, while ante-natal conditions are, of course, more likely to be right-sided.

DR. ESHNER thought that the marked improvement that had occurred both in symptoms and in physical signs also pointed toward a post-natal, rather than to an ante-natal, condition. He suggested, however, that the improvement in the child's condition was very largely the result of improvement in its general nutrition. The child was evidently rickety, and the use of a satisfactory diet with coincident improvement in the general nutritive condition would be sufficient in itself to cause marked amelioration in the cardiac dilatation. He believed that the striking improvement reported was probably to a large extent due to general nutritive improvement, rather than to the special cardiac therapy.

DR. EDSELL referred to the fact that a very common condition in mitral stenosis is a marked tenderness over the region of the apex, this being so common as to amount to a sign suggestive of mitral stenosis in cases in which murmur is absent. This, among other signs, had, at times, led to a correct diagnosis of mitral stenosis in the absence of a murmur; as, for instance, in a case reported by Strauss. Dr. Edsell had found the condition frequently present in adults, but, at most, only rarely present in children; and asked whether others had made any observations concerning this tenderness in children with mitral stenosis.

DR. HAMILL, closing the discussion on his heart case, said that he had made no attempt to distinguish between an ante-natal and a post-natal condition. He thoroughly agreed with Dr. Eshner in the belief that dilatation was a marked feature in the case. There was distinct evidence of dilatation and of decided improvement in this dilatation, this being especially indicated by the changes in the cardiac dulness.

DR. L. C. PETER presented a case of

SPORADIC CRETINISM, SEVEN YEARS OLD,

which had been under treatment for one year. During the administration of thyroid extract (two grains daily), the child learned to walk and talk, the facial expression changed from that characteristic of cretinism to that of a bright, intelligent child, and the general appearance of the child was materially altered.

DR. PETER also presented a case of

TUMOR OF THE CEREBELLUM IN A BOY OF FOURTEEN.

For six months headache was almost constantly present, frequently accompanied by severe and sudden attacks of projectile vomiting, and a very marked rigidity and spasm of the posterior cervical muscles. His gait was slightly unsteady (not, however, characteristically ataxic), and choked disc was present in both eyes. The deep reflexes were erratic; there were no palsies, and forced movements were never observed. He never had a convulsion. A tubercular family history suggested the probability of the growths being tubercular. Under the iodid treatment the headache seemed to be less constantly present.

DR. GRAHAM, discussing the case of brain tumor, suggested that a decided aid in the diagnosis of the nature of the tumor might be the temperature record. If the patient had tuberculosis and the tumor were a tubercular one, temperature variations might, of course, be expected, and would have been of use in determining the diagnosis.

DR. HAND directed attention to the possible danger in doing lumbar puncture in cases such as the one of brain tumor. There are at least 4 cases of sudden death on record, which were probably due to the use of lumbar puncture in brain tumor. The cause of death in these cases is said to be the sinking of the tumor upon the foramen magnum, with pressure upon the vital centres, after the fluid which had supported it has been withdrawn. There was, of course, no especial indication for lumbar puncture in the case shown.

DR. EDSALL, in discussing the case of cretinism, referred to an observation which he had made during the previous summer, while doing some work on the neutral sulphur of the urine.

The neutral sulphur is looked upon as being a fair index of the degree of tissue destruction going on; and its amount in proportion to the sulphates increases, if any excess in tissue destruction occurs. In 2 cases of cretinism he had, however, observed that the relative amount of neutral sulphur, when the patient was on thyroid extract and was certainly breaking down a great deal of tissue, did not increase. In one instance it was evidently decidedly below the normal. This, perhaps, indicates some marked difference in the oxidative processes incretins or in their tissues, as compared with normal persons.

Treatment of Laryngeal Growths in Children.—G. Hunter McKenzie (*British Medical Journal*), contributes a paper upon this subject which is limited to the treatment of papillomata. The author says thyrotomy is unsatisfactory on account of injury to the voice, the predisposition of the tumor to recur, and the danger of chronic stenosis of the larynx. The endolaryngeal operation is objected to on account of the difficulty of carrying it out thoroughly in children. He prefers tracheotomy, leaving the growths to care for themselves. In time they disappear spontaneously. He reports 7 cases which have been treated by this method. These patients were under his observation for a minimum period of two years. Four completely recovered after using the canula six to fifteen months. One had previously undergone thyrotomy under another surgeon, and the growth disappeared after wearing the canula two and one-quarter years. Another, a very poorly nourished child, died from independent disease about two years after tracheotomy. The seventh case was tracheotomized for sudden laryngeal stenosis. The canula was withdrawn after one year, and the result was most satisfactory. The author then quotes several cases which have been recorded, and showed marked benefit from tracheotomy. He says the operation is indicated whenever complete and permanent aphonia is present. It is not considered necessary to wait for the onset of dyspnea before operating. He also advises as an accessory the removal of adenoids on the ground that the irritation caused by them may have something to do with the growth of the papillomata.—*Medical Review of Reviews.*

Current Literature.

PATHOLOGY.

Kashiwamura, S.: The Thyroid Gland in Infectious Diseases. (*Virchow's Arch.* Vol. clxvi., No. 3.)

Fifty-five thyroid glands were studied, of which 38 were from patients dead of infectious diseases, and 17 were taken, for comparison, from general diseases. Thirty-two were adults and 23 children. Diphtheria, scarlet-fever, measles, tuberculosis, typhoid fever, puerperal fever, sepsis and pneumonia were represented. The writer was unable to confirm the observations of Roger and Garnier and of Torri, that the thyroid gland in infectious diseases gives evidence of increased activity by the presence of numerous epithelial filled follicles and larger epithelial strands. The variability of the normal structure of the thyroid gland, particularly in children, makes the above conclusion especially difficult of confirmation.

MEDICINE.

Roeder, H.: A Case of Solid, Thrombosed, Dilatation-Aneurysm of the Ductus Arteriosus. (*Virchow's Arch.* Vol. clxvi., No. 3.)

The case was that of a ten-days-old baby born of a mother with a small, rachitically deformed pelvis, necessitating version and extraction of the child, who was in an asphyxiated condition. There was paresis of the right arm. Death was apparently due to enteritis. The autopsy showed suppurative meningitis, fracture of the left clavicle, abscess over the clavicle and in the upper lobe of the left lung, omphalitis, and aneurism and thrombosis of the ductus arteriosus. The cranial bones were overriding, but not fractured. The ductus arteriosus was dilated, egg-shaped, elastic to the touch, and as large as half a cherry. Section showed an aneurism containing a firm, red thrombus. The condition was not due to the umbilical infection, which, though severe enough to cause death, was only a secondary thing, occurring later than the lesion in the ductus arteriosus. The latter was due to circulatory disturbances

caused by the great pressure to which the child was subjected throughout a tedious labor, an evidence of which remained at autopsy in the position of the cranial bones.

Marfan, A. B.: Vomiting with Acetonemia. (*Arch. de Méd. des Enf.* Vol. iv., No. 11.)

The affection occurs in children between the ages of one and ten years, the author never having seen a case in a nursling fed on milk alone. It is characterized by uncontrollable vomiting, the odor of acetone in the breath and often in the urine, and no fever. The vomitus at first consists of food, later of a limpid, acid liquid, usually colorless, or slightly tinged with bile. Healthy children are attacked, the vomiting beginning shortly after the appearance of lassitude, mild headache and diminished appetite. An attack may last five or six days, but relapses are frequent. In children subject to this affection an attack may occur when the child is suffering from another disease. Neither relapses nor periodicity are essential characteristics. Recovery is almost always complete. It is possible that this form of vomiting may be allied to that which has been described as cyclic in children.

Cristeanu and Bruckner: The Diphtheria of Nurslings. (*Arch. de Méd. des Enf.* Vol. iv., No. 11.)

Diphtheria is rare in young infants, especially in the newly-born. This is largely due to the care which prevents their exposure; but if occasion presents itself the disease may appear as well in the newly-born as in any other stage of infancy. Infection takes place through the mouth most frequently; nasal diphtheria is almost always secondary from extension through the pharynx; laryngeal and pulmonary complications are rare. The mortality is high, owing to the difficulty of making the diagnosis early and to the diminished resistance of the infants. Death is usually due to toxemia. Antitoxin should be administered both as a prophylactic and as a curative measure.

Arostegui, Gonzalo: Tetanus Neonatorum in Havana. (*Revista de Medicina y Cirugía de la Habana.* Ano. vi., Num. 4.)

This paper, which was read before the Third Pan-American Congress, consists of two portions, statistical and descriptive or clinical.

In the statistics no distinction is made between tetanus traumaticus and trismus nascentium; while deaths imputed to the latter are doubtless due in some cases to other maladies.

Nevertheless the figures cited have a relative value, for it is very apparent that the frequency of tetanus has diminished very rapidly within a generation. Despite the growth of Havana during that period, the mortality from these affections has come down from about 400 deaths annually to less than half that figure. The following factors are cited as tending to lessen the morbidity from tetanus: Diminished frequency of puerperal fever; aseptic technique in ritual circumcision, and in particular, improved manner of treating the umbilical cord.

The conclusions from the clinical portion of the paper are in part as follows: Trismus nascentium is a preventable disease, being independent of atmospheric and telluric influences. There is no racial predisposition to this affection, for the relative frequency is not greater in black children. The disease has no local peculiarities, but has constant characters throughout the globe. It pursues a frankly acute course in the infant. When recoveries have occurred in the new-born they cannot be attributed to the use of antiseptics or antitoxin.

Crisafi, Domenico, Pathogeny of Night Terrors. (*La Pediatria.* Anno. ix., N. 10.)

Pavor nocturnus is never a symptom of other diseases, but is a morbid entity belonging to the group of functional neuroses. So-called symptomatic favor should not be recognized as such. If a child tosses and jerks in its sleep, grits its teeth and contorts its face, finally waking up in a condition of fright, we have a state of affairs which can be explained readily by reflex action, depending upon indigestion, worms or some similar cause, and from which anyone might suffer under certain circumstances. It would be proper, however, to term these phenomena *pavoriform* or *parapavoric* attacks.

True pavor is a very different affair, consisting of paroxysms, which may persist for half an hour or even a full hour, and are characterized by terrifying hallucinations. At the close of these attacks spastic urine is voided and there is more or less amnesia in regard to the seizure. A peculiarity which often accompanies the hallucinatory objects (dogs, cats, etc.) is that the latter are spoken of as black.

Pavor nocturnus is more than a simple nightmare; for it is common to see children thus afflicted wake promptly and call for their parents. The child with true pavor is not conscious, even although he may reply at times to interrogations. He does not recall the hallucinations which he describes at the time of their occurrence.

Snow, Sargent F.: Deafness from Scarlet Fever. (*Buffalo Medical Journal.* No. dclx.)

Two cases are cited as documents to the fact that adults who have suffered since early childhood from suppurative otitis media and deafness of scarlatinal origin may either recover completely or at least obtain a fair functional result.

In the first case the perforated drumheads closed and hearing was completely restored after polypoid formations had been thoroughly destroyed with chromic acid.

In the second case the destructive process had gone too far to justify any expectation of complete restitution, but hearing on one side was improved 400 per cent. by the use of a false drum of rubber film.

Thomas, H.: Chorea with Embolism of the Central Artery of Retina; a Short Review of the Embolic Theory of Chorea. (*Johns Hopkins Hospital Bulletin.* Vol. xii., No. 127.)

A girl of sixteen, always healthy, complained of nervousness attributed to overwork. She had been a sewing-machine worker in a factory for three years. The trouble began with unsteadiness in the movements of the right hand, awkwardness in speech and a sudden loss of vision in the left eye. The patient was slightly anemic, had a slightly dilated heart with a rough, blowing systolic murmur heard at the apex, and showed a mild grade of choreic movements limited to the right arm and leg, with occasional movements of the face. Vision in the right eye was normal, but that in the left eye was absolutely nil. Ophthalmoscopic examination showed atrophy of the left optic nerve with markedly contracted arteries. The right optic nerve was normal.

The eye complications of chorea are not very numerous. Muscles of the eyeballs are rarely the seat of choreic movements, and these may be unequal in the two eyes. Chorea movements of the iris have been described. Gowers refers to optic neuritis

as not very uncommon, and atrophy of the optic nerve is said to have been observed.

Only 6 other cases of embolism of the central retinal artery were found in the literature, all considered by the authors as dependent upon emboli, and supporting the theory of the embolic origin of chorea. The objections to this theory seem so strong in the light of our present knowledge that it appears untenable. While it seems but of small value at the present time to advance any theory as to the seat of the morbid process of chorea, the author thinks that when the lesion is found it will be on the afferent rather than on the efferent side of the motor-mechanism.

Willson, Robert N.: Tetanus Appearing in the Course of Vaccinia; Report of a Case. (*American Medicine.* No. 23.)

An instance of acute tetanus seen by the writer is stated to be typical of the Camden cases, which followed closely upon vaccination. The characteristics were as follows: 1. Incubation period (if disease transmitted by vaccination) much longer than normal; as a rule it is less than two weeks, but in the Camden cases it was three or four weeks. 2. The cases were uniformly fatal (the general rule in tetanus is that the longer the incubation period the greater the chance of survival). 3. Treatment—whether antitoxin, carbolic acid, chloral, bromids, etc.—was without effect. 4. Mixture of infection was probable (proved in author's case). 5. Vaccination wound not properly protected. The child's father was a stableman, and this fact alone is presumptive evidence of secondary contamination of the wound. The conclusions are as follows: 1. Judging from the author's case there is great likelihood that these individuals were inoculated after vaccination. 2. Tetanus with delayed incubation has never shown such a mortality as 100 per cent. (antitoxin was used). The fact is admitted that in rare instances the incubation period may be prolonged to five weeks or more. Cases of this sort have been known generally as examples of "chronic tetanus," an affection which is both rare and relatively benign. 3. There is evidence that the after-treatment of these vaccination wounds was neglected. 4. Research into literature appears to show that in no case of vaccination-tetanus was the incubation period within normal limits—an argument that the tetanus germs were not introduced with the vaccine-virus.

Redfern, John J., and Newby, Gervase: Prolonged Action of the Heart Maintained by Artificial Respiration Without Other Signs in a New-born Infant. (*British Medical Journal*. No. 2137.)

The infant was born in a state of apnea but with normal circulation. The usual methods of reanimation were instituted, with the addition of tracheotomy and inflation of the lungs through a tracheal tube. These measures increased the circulatory activity but no inspiratory efforts were noted until after the lapse of two hours and a half. After breathing had become established active assistance was abandoned and the case was left to nature, respiration occurring through both natural and artificial passages.

About midnight (the child had been delivered at 3.30 p.m.) natural respiration began to fail, death occurring at 4.20 a.m., with evidences of cyanosis. The most striking feature of this case remains to be emphasized. This baby had in reality never lived at all, in the ordinary sense of the term. No muscular contractions had been present with the exception that not long before death there were classic spasms of the right hand. "Normal heart" action was present at birth and spontaneous respiration had been brought about for a short period after several hours of most heroic treatment.

The authors are inclined to ascribe the peculiarities of the case to the chloroform which had been used in delivering the infant, and which is held by some to cause respiratory failure in advance of cardiac failure. But in the episode just described the infant was also delivered by forceps and had two turns of the cord about its neck at birth.

Forsyth, Edgar A.: Amygdalotomy Rash. (*New York Medical Journal*. No. 1203.)

Reference is made to a recent report of this affection by Wingrave. Aside from this record and a statement by Lennox Browne to the same effect, Forsyth is unaware of the existence of other literature.

He has seen a single case in a boy aged eleven years after extirpation of the pharyngeal tonsil. Cocaine-anesthesia was used, and the instruments were all sterilized—hence the possibility of a drug exanthem or septic rash should be excluded.

The efflorescence appeared on the second post-operation

day, the patient being well and strong at the time. A diagnosis of scarlet fever, made at first, was soon abandoned, for at the end of two additional days the child was free from all symptoms.

King, Emil: Scarlet Fever with Unusual Nervous Complications. (*American Medicine.* Vol. ii., No. 24.)

Coincident with the inception of scarlatina the five-year-old child developed opisthotonus with trismus. Abdominal pains were also present, of a severe, periodical type, lasting several hours at a stretch. These pains were accompanied by convulsions, cyanosis and biting the tongue. The various manifestations all improved with complete ultimate recovery.

The case, in the author's opinion, was perplexing. The opisthotonus, etc., could hardly have represented an associate tetanus infection. On the other hand, a diagnosis of cerebro-spinal meningitis would have been justifiable in the absence of the exanthem. The case is best denoted by the title of the communication.

McCaw, John: Remarks on a Case of Infantile Scurvy. (*British Medical Journal.* No. 2131.)

An atypical case is described in which most of the cardinal symptoms were absent. The baby was ten months old. His first ailment was apparently an ordinary febrile gastric attack, but incidentally much blood was passed both by the mouth and rectum. It was learned that the infant had been raised on condensed milk and proprietary foods.

Orange juice, whey and raw beef juice were prescribed and the treatment supplemented by an icebag over the epigastrium for half an hour daily. The cure was complete in eight days.

The following symptoms were absent in this case: Subperiosteal and subcutaneous hemorrhages, tenderness on handling, proptosis. There were no skeletal evidences of rickets.

Josias and Tollemer: Generalized Malignant Lymphoma Starting From the Tonsil in a Child of Nine Years. (*La Presse Médicale.* No. 100. 1891.)

Among the various types of malignant lymphoma the tonsillar is the most rare. In the case of the author's little patient, the left tonsil became much enlarged shortly after an attack of streptococcus angina. The submaxillary nodes, then the in-

guinal, cervical and axillary became palpable, dysphagic and emaciation were marked. The tonsillar growth filled almost the entire pharynx, and was felt externally as an egg-sized mass at the angle of the lower jaw. Dyspnea became so extreme as to necessitate tracheotomy. Death occurred seven weeks after the onset of the tonsillar enlargement, the tumor having grown so as to fill the whole mouth. The autopsy showed that all the lymph nodes were enlarged, the viscera apparently being normal. In the right half of the diaphragm and in the subumbilical region attached to the bladder were two white masses, apparently like lymph nodes on section; the tonsillar tumor was of the same kind. Microscopically the tonsil showed the structure of a lympho-sarcoma, as did the other masses. The liver, spleen, marrow and kidneys gave evidence of abundant lymphoid infiltration.

Before death a blood examination proved the absence of a leucocytosis; but the relative proportions of the various leucocytes were altered, the polynuclear variety being few and the mononuclear numerous; eosinophiles were very few. Some nucleated red blood cells were seen.

Lereboullet, M. P.: Sarcoma of the Pia Mater with Symptoms of Tuberculous Meningitis. (*La Presse Médicale* No. 104. 1901.)

A four-year-old girl was treated for a polyp of the left ear, which returned after removal. At the same time the cervical lymph nodes on that side gave evidence of the presence of a secondary sarcoma. Then symptoms simulating tuberculous meningitis appeared and death followed two weeks later. At the autopsy it was found that a sarcoma had originated in the left acoustic nerve and involved the pia mater of the bulbo-protuberential region and all the cranial nerves at their origin. While the cerebrum and cerebellum remained free, the pia mater of the spinal cord was markedly thickened by the sarcomatous growth and the cord itself slightly flattened but not penetrated, by the sarcoma, which was of the spindle-celled variety.

Richardière and Delherm: Subcutaneous Emphysema in Bronchopneumonia. (*La Presse Médicale*. No. 104. 1901.)

Generalized subcutaneous emphysema developed in the course of a bronchopneumonia following measles in a child

two-and-a-half years old. Death occurred three days after the appearance of the emphysema. At the autopsy bronchopneumonia was found, and also interlobular and mediastinal emphysema, the latter caused by the rupture of dilated pulmonary vesicles.

Neither increased dyspnea nor any cardio-vascular symptoms preceded the onset of the emphysema in this case. The emphysema is an indication of a very grave condition, and is almost always followed rapidly by death.

Dubief and Rabot: Tuberculous Meningitis in an Infant Aged Two Months and Twenty Days. (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 12.)

The child was born of syphilitic parents, but had no signs of syphilis himself. The illness began with constipation and this was followed by diarrhea. Convulsions were repeated and general, opisthotonus, irregular pulse, Cheyne-Stokes respiration and coma were marked. Death occurred five days after the convulsions and other cerebral symptoms began. At the autopsy a well-marked tuberculous meningitis was found over the base and lateral surface of the cerebrum, also over the medulla and upper end of the spinal cord. The cervical and bronchial lymph nodes were cheesy. Both lungs were studded with tubercles, and some were found in the pleura, liver, spleen and left kidney.

As usual, in the case of tuberculous meningitis, the infection took place through the tracheo-bronchial lymph nodes. But one case is recorded (by Weigert) in which the nasal cavity served as the point of entrance for the infection in this disease. While it is most common between the ages of three and six years, it is not infrequently seen in the second year. But during the first three months of life it is rare, and the child's lack of resistance, due to its syphilitic and alcoholic parentage, undoubtedly favored the development of the tuberculosis.

Garrod, A. E.: About Alkaptonuria. (*The Lancet.* No. 4083. 1901.)

Alkaptonuria may be met with in brothers and sisters, but no instance of its transmission from one generation to another has been recorded. There is a special liability of alkaptonuria to occur in the children of first cousins, and the writer has evidence of such relationship in three of four families, including

eleven alkaptonuric members. These facts support the view that the condition is what may be described as a "freak" of metabolism, a chemical abnormality more or less analogous to structural malformations. It may persist through life without any apparent detriment to health, and may date from earliest infancy. A congenital case is reported in which the characteristic staining of the diapers was noted the day after birth, and was very marked when the child was fifty-two hours old. An elder brother showed the staining on the second day after birth. The available evidence points to tyrosin, formed as a product of pancreatic digestion, as the parent substance of the homogentisic acid which imparts to alkaptone urine its peculiar properties. Observations made with such urine tend to support the view that the change from tyrosin to homogentisic acid takes place in the tissues after the absorption of the former, rather than the alternative view that the change in question is brought about in the alimentary canal.

Sobel, J., and Herrman, C.: Ulceromembranous Angina Associated with the Fusiform Bacillus (Vincent); A Report of 12 Cases in Children. (*The New York Medical Journal.* Vol. lxxiv., No. 23.)

The cases occurred in children ranging from two-and-a-half to seven years of age. The right tonsil was attacked six times, the left four times, and both tonsils twice. Similar ulcerations may occur on the tongue, cheeks, or gums. They may be as small as the nail of the little finger, or may involve the greater part of the tonsil; for the most part the ulcers are irregularly circular or oval, varying in depth from an eighth to half an inch. As to the character, the term "chancroidal" seems most fitting; only within the first twenty-four to thirty-six hours is it membranous. There was some elevation of temperature in all the cases, and the submaxillary lymph nodes were enlarged in all but two. The symptoms were slight and almost entirely local.

The positive diagnosis rests upon the microscopical examination, which gives a characteristic picture of large numbers of fusiform bacilli and spirilla. The bacillus is about twice as long as the Klebs-Loeffler bacillus and pointed at the ends; sometimes crescentic, sometimes arranged end to end in a spiral or at an acute angle to form an L. The spirilla are long and cork-

screw like, and probably give rise to the bacilli by the separation of their segments. No growth could be obtained on any medium.

The cases recovered in about three weeks, with slight subsequent tonsillar destruction. Applications of silver nitrate (3 to 5 per cent. solution) were made daily. Lugol's solution was used in 2 cases, and iodin solutions were found more efficient but less agreeable.

Scott, J. A.: A Case of Chronic Lymphatic Leukemia in an Infant. (*The American Journal of the Medical Sciences.* Vol. cxxiii., No. 1.)

The subject was an Italian boy, nine months old, said to have been well until one month of age, when an unusual pallor was noticed. He had frequent attacks of diarrhea, but no evidence of rickets. The spleen was enlarged, extending to within one finger's breadth of the iliac crest and posteriorly two fingers' breadth below the costal margin. Once he coughed up a small amount of blood, but no other hemorrhages occurred. Repeated blood examinations with differential leucocyte counts were made during the year that the child remained under observation and showed a leucocytosis of a slowly increasing lymphatic type, nucleated red cells of all sizes and ages, degenerative changes in the red cells and a few myelocytes. Death was due to asthenia at the age of twenty-one months. No autopsy was obtained.

The clinical and blood pictures correspond accurately to the description of v. Jaksch's pseudoleukemia anemia infantum, but no careful differential blood counts have been recorded in the cases hitherto reported. The author is inclined to believe that splenic anemia and pseudoleukemia anemia infantum have their proper position in the secondary anemias.

Amberg, S.: A Contribution to the Study of Amebic Dysentery in Children. (*Bulletin of the John Hopkins Hospital.* No. 129.)

Five cases were observed, ranging from two years and eight months to five years of age. Two were playmates drinking water from the same contaminated source and 2 were brothers. All the cases were of moderate intensity. No one of them proved fatal. The children felt surprisingly little discomfort; only one suffered from severe pain on defecation. In 2 cases

prolapsus recti occurred, but no sign of any affection of the liver was noted. The diagnosis was based upon the finding of mobile amebæ containing red blood corpuscles. Eosinophile cells, free eosinophile granules and Charcot-Leyden crystals were found in the feces of 4 cases, but no distinct relationship between the number of crystals and eosinophile cells in the feces and the number of eosinophile cells in the blood could be established. In 1 case there was a slight, though distinct eosinophilia. There was a leucocytosis in all the cases, though not a very marked one, the polynuclear neutrophiles being increased. In 4 cases there was a varying degree of anemia, finding its expression more in a deficiency of hemoglobin than in the red blood corpuscles. If Charcot-Leyden crystals are found in the feces of a child, the possibility of amebic dysentery must be taken into consideration.

Sailer, J.: Two Cases of Typhoid Fever Complicated by Noma. (*The American Journal of the Medical Sciences.* Vol. cxxiii., No. 1.)

The patients were brother and sister, aged fourteen and eight years respectively. In both necrosis developed on the right side of the jaw early in the third week of the disease. Cultures showed diphtheria bacilli in the necrotic areas. Antitoxin was administered, but the boy died. The girl recovered, diphtheria bacilli having been found in culture from the discharge from the right ear and also from the cavity of a loosened tooth. The mother had had a typical attack of diphtheria during the previous summer, and had apparently recovered completely. Another brother was also ill with typhoid fever, but did not develop noma.

Noma is an exceedingly rare complication of typhoid fever. The diphtheria bacillus has been found in cultures made from cases of noma by several observers. It is of diminished virulence, and proved so in the present cases. Usually it acts as the cause of noma in the presence of some other infectious disease, in patients whose physical condition is bad.

Blumer, G., and MacFarlane, A. : An Epidemic of Noma, Report of 16 Cases. (*The American Journal of the Medical Sciences.* Vol. cxxii., No. 6.)

The cases occurred during an epidemic of measles, and involved the mouth alone four times, the mouth and other parts

three times, the vulva alone twice, and seven times with other parts. The children were from three to twelve years old. Of the fatal cases noma involved the mouth in three and the rectum in four children.

Nine cases were examined bacteriologically with the result that a thread-like organism was found constantly and in large numbers in cover slips, but failed to grow in cultures. It showed no branching, stained poorly by Gram, and better with carbol-fuchsin. The colon bacillus was present in all cases, as was the staphylococcus aureus commonly and the streptococcus occasionally. In sections the thread-like organism was present in enormous numbers in the deeper part of the necrotic zone, and diminished in numbers in the reactionary zone and as the healthy tissue was reached.

The conclusion is drawn, both from the literature and from the investigation, that noma, while originating in all probability as a simple infection, is always, in its later stages, a mixed infection; and that, while it is probably not always due to the same organism, it is most frequently due to a long, thread-like organism of the leptostrix type, which does not grow upon the ordinary culture media. The assumption that it is due to mouth organisms is negatived by finding similar organisms in noma of the genitalia.

Williams, Watson P.: On Rubella, Scarlatina and "Fourth Disease." (*British Medical Journal*. No. 2138. 1901.)

An epidemic of 32 cases of rubella occurred in a school. Some cases were of the scarlatiniform variety, and were, to all appearances, typical examples of "fourth disease"; but no other child contracted "fourth disease" from them; no case developed albuminuria nor Koplik's spots.

Another epidemic was observed, in which scarlatina resembling rubella resulted from an infected milk supply. All the symptoms given by Dukes as indicative in "fourth disease" were noted in these mild scarlet fever cases: prolonged incubation, absence of pre-eruptive vomiting, low pulse rate, which seldom reaches 100; absence of desquamation of the tongue about the fourth day; absence of renal complications. Some of the cases were treated in the scarlet fever wards, yet no one contracted scarlatina in the hospital, nor did they communicate "fourth disease" to the other scarlet fever patients.

Rubella occurs in two types, the morbilliform and the scarlatiniform, and one or the other type prevails in any single epidemic. When it can be shown that an attack of "fourth disease" protects the patient from rubella and yet occurs in those who have previously had scarlet fever, the evidence of its being a distinct exanthem will certainly be very convincing; but hitherto such evidence is lacking.

SURGERY.

Porter, J. L.: Three Points in the Treatment of the Deformities of Infantile Paralysis. (*The Medical News.* Vol. lxxix., No. 25.)

The most efficient treatment of the deformities resulting from infantile paralysis is the preventive treatment. Thus the wearing of a high shoe on the foot of the shortened and paralyzed leg prevents lateral curvature.

Every case of infantile paralytic deformity, however slight or severe, can be improved to some extent by appropriate treatment.

Simple tenotomy of the shortened tendons in these cases is of great benefit, aside from the release of tension and improvement of function that result. The improvement gained by the operation must, however, be maintained by means of proper mechanical apparatus, to prevent the recurrence of the contractures and deformity.

Townsend, Wisner R.: The Correction of Deformities Following Osteitis of the Knee. (*New York Medical Journal.* No. 1203.)

After osteitis of the structures which enter into the formation of the knee-joint, the following deformities may remain, viz.: subluxation, flexion, knock-knee, bow-legs, outward rotation of tibia and genu recurvatum. Ankylosis may or may not complicate these deformities. Subluxation, a deformity *per se*, is also associated with most of the other anomalies. For essential subluxation Townsend recommends, for general use, a

forcible correction under anesthesia, with or without division of the hamstring tendons.

For flexion the same indications exist, save in those extreme cases in which alignment of the tibia and femur is impossible. In such rare exceptions osteotomy is the operation of choice, for excision is more of the nature of capital intervention with its attendant risks.

In regard to deformities other than subluxation and flexion, osteotomy is the operation of choice, and the subcutaneous linear division of the femur will suffice in most cases. It must be remembered that osteotomy does not compromise the integrity of the joint as does excision, so that much depends in these cases upon the actual degree of mobility of the articulation at the time of intervention. Generally speaking, excision is contra-indicated in growing children.

Brun, F.: Bloodless Reduction of Congenital Luxation of the Hip. (*La Presse Médicale.* No. 84. 1901.)

Reduction by the bloodless method can be obtained in every case and without difficulty in patients between three and five years old. Occasionally the results are good in older children who are poorly developed. Before the third year reduction is easy, but apt not to be permanent. It is best to do only one side at a time, the treatment taking about a year; in cases where both sides are affected, two years are required. The procedure is as follows: An assistant having fixed the pelvis by flexing the sound thigh on the trunk, the leg on the thigh and keeping the sacrum flat on the table, the operator places the affected extremity in a position of semi-flexion and abduction, and moves it back and forth in order to detach or rupture the abductor tendons. The movements are continued until the leg can be brought into a position of forced abduction. As a result of this manouever ecchymosis and tumefaction may occur, but no bad effects have been seen. The head of the femur having been forced into place, the hip is immobilized in a position of abduction and rotation outward by means of a plaster dressing covering the iliac bones and extending below the flexed knee of the affected side. This remains in place four months, the child being kept on his back. The position of the limb is then changed to one of moderate abduction and inward rotation, the knee extended, and a second dressing applied. After two months

this is changed for the last time, the leg being put into its normal position. Upon removing the third dressing, massage and manipulations are necessary, and it is only after four to six months that recovery can be considered positive.

A rare accident resulting from the employment of this method is the separation of the upper or lower epiphysis of the femur at the time when the position is first changed after the removal of the original dressing. No serious consequences follow its treatment. Lack of care may cause the formation of ulcers at various points from pressure of the plaster splint. Paralysis of the sciatic nerve and gangrene of the leg have never been observed by the writer.

Bernard, A.: Compound Comminuted Fracture of the Left Parietal Bone. (*Arch. de Méd. des Enf.* Vol. iv., No. 11.)

A boy, seven years old, was run over by a tram car and suffered a compound, comminuted fracture of the left parietal bone, with depression of the fragments. Operation was performed at once, the bony spicules compressing the brain were removed, and the meninges found intact. A piece of bone had penetrated the transverse sinus, but prevented hemorrhage by remaining in place. Upon removing this the hemorrhage was controlled by a tampon of gauze. The boy was in complete coma and the right arm and leg were paralyzed. The tampon had to remain in place for nineteen days, but cure was complete in about six weeks.

D'Astros, L.: Osteomyelitis in Infants Under Three Months, and its Possible Consequences. (*Rev. Mens. des Mal. de l'Enf.* Vol. xix., No. 11.)

In recent years the writer has observed 11 cases of osteomyelitis in babies less than three months old. Three of these involved several bones simultaneously; femur and humerus, femur and radius, femur, wrist and phalanges. Altogether the bones were involved as follows: femur, 6 (upper end in 2, shaft in lower end in 4); humerus, 2 (upper end in 1, shaft in 1); radius, 2 (lower end in 1 shaft in 1); carpal and metacarpal bones in 3; phalanges in 1; sacrum in 1. The frequency with which the femur is involved confirms the observations of others; the tibia was not involved in any case, although it is so often the seat of the disease in adolescence. Both cases affecting the

upper end of the femur were accompanied by pus in the hip joint. Osteomyelitis may be of congenital origin. One of the writer's cases was probably of such a nature, symptoms having appeared the day after birth. Later the infection may occur through the skin, the digestive tract, the respiratory tract or the umbilicus; but the point of entrance of the infection is by no means always clear. Clinically the cases vary greatly; thus the localization of an infection in the osseous system may be the predominating fact, or the osteomyelitis may simply be part of a general septicemia. In the latter case the prognosis is a fatal one. Six of the writer's 11 cases died. The prolonged and chronic cases are more rare than are the acute ones.

McKenzie, B. E.: Deformity Arising from Injury to the Lower Epiphysis of the Tibia. (*Medical News.* No. 1507.)

Three cases are reported of a peculiar deformity which the author is unable to duplicate from literature. The characteristics of this deformity are illustrated by the first of the 3 cases, as follows: At the age of two years the patient (now aged eleven) had undergone some disease of the shaft of the tibia which had left scars on the anterior aspect of the leg. As a result the foot grew in such a position that the weight of the body was transmitted along a line which passed to its outer side. In other words the growth of the tibia appeared to have been arrested, while that of the fibula was not. The arrested growth of the tibia appeared in turn to be due to a synostosis of the shaft and epiphysis of the bone.

To correct this deformity, the author excised a portion of the fibula, made a linear osteotomy of the tibia, and corrected the faulty portion of the foot. A good functional result was thus obtained, with considerable shortening of the leg.

Park, Roswell: Congenital Defect of the Forearm. Absence of the Radius. Club Hand, etc. Plastic Operation, (Philadelphia Medical Journal. No. 206.)

Part of the carpus was first removed, and the ulna was pointed with the view of anchoring it in the wristbones. This step, at first unsuccessful, was facilitated by passing a kangaroo tendon through the bones. The carpal defect was made good by implantation of a piece of rabbit's humerus. The wounds

have healed kindly, but the case is still under treatment as regards functional results.

Campo y Cava, Eduardo: Simple Synovitis of the Ankle-joint; Supervention of Variola; Recovery. (*La Medicina de los Ninos.* Tomo ii., Num. 22.)

The four-year-old patient suffered originally from a synovitis, with extra-articular infiltration. Elastic compression was instituted, and while the case was progressing favorably, small-pox developed. The synovitis was in no wise influenced by the eruptive disease, and the patient made a universal recovery.

Seamon, Felix: Some Thoughts on the Principles of Local Treatment in Diseases of the Upper Air Passages. (*British Medical Journal.* No. 2131.)

In the course of this lecture the subject of adenoids is considered. As late as 1881 these growths were practically ignored in Great Britain. Then came a period of scepticism and ridicule, during which the specialists were accused of having "invented a new disease." By 1890 the operation of removing adenoids had become a fad, and was doubtless employed without indication in many cases, such as supposed reflexes (stammering, enuresis, etc.). After a year or two of popularity a reaction set in based in part upon the discovery that adenoids are prone to reappear after removal and partly upon the number of fatalities which followed operation under general anesthesia. One aspect of this reaction was the substitution of breathing exercises for operative treatment. The alleged cures produced by this new operative procedure concerns cases of simple congestion only. The hyperemic tissues become succulent and produce obstruction of a transitory character. Even then the cure is due to nature and not to the respiratory gymnastics.

He admits that the operation for adenoids is greatly overdone. Absolute indication is present in all typical cases such as lead to deformities of the face and thorax, provided that the children are so remote from the age of puberty that much harm may result before spontaneous involution could occur. In the congestive type, which is intermittent in character, we should err on the side of conservatism. The practitioner must neither be open to the charge of meddlesomeness nor neglect. Much depends on the frequency and severity of the periodic attacks.

In a third class of cases termed "adenoids without symptoms," the indication is clearly to abstain from intervention. The same generalization holds good for alleged "reflexes" from adenoids.

In making a diagnosis of typical cases, too much stress should not be placed on the "adenoid face," which may be produced equally by hypertrophy of the turbinates, and other conditions which obstruct nasal respiration. Differential diagnosis becomes necessary here.

Galcerán Giralt, Emilio: *Tuberculosis of the Tibio-tarsal Joint; Resection; Supervention of Confluent Small-pox; Recovery.* (*La Medicina de los Niños.* Tomo ii., Num. 22.)

The five-year-old patient had already had one attack of small-pox (?). The bone-lesion was the result in part of a trauma. Before resecting the tuberculous ankle the child was vaccinated, as small-pox was then raging. Immediately after the surgical intervention the child came down with variola confluens. The vaccination took in an abortive form only. The ultimate result of the surgical intervention does not appear to have been influenced by the contagious disease. The patient made a universal recovery.

Pi Morel, Enrico: *Suppurative Arthritis Following Small-pox, etc.* (*La Medicina de los Niños.* Tomo ii., Num. 22.)

The three-year-old patient, who had never been vaccinated, contracted small-pox while convalescent from pneumonia. Very soon after recovering a septic arthritis (not an uncommon sequela of variola) developed in four of the larger joints (shoulders and elbows). Abscesses formed and discharged, leaving fistulous tracts. In order to prevent the development of ankylosis, radical operations were successfully performed. The coracoid process and acromion, which were found to be carious, were curetted. At a second session the left elbow-joint was resected. The patient made a good recovery.

Jopson, J. H.: *Impacted Calculus in the Urethra in Children.* (*The American Journal of the Medical Sciences.* Vol. cxxiii., No. 1.)

Two cases are reported, from both of which the calculus was removed by operation. The younger child, three years old, gave symptoms of stone before obstruction developed; and the

urethra ruptured as a result of the impaction. The edema rapidly subsided after the operation, but symptoms resembling scarlet fever appeared on the third day and death occurred ten days later. The fatal complication may have been a septic condition from urinary absorption.

In the second case, three and a half years old, no symptoms had been observed before the stone engaged. The child recovered after operation. The calculus was of the uric acid variety in both instances.

The removal of an impacted calculus is more difficult in children than in adults. If it cannot be seized with forceps after a preliminary meatotomy, nor pushed backward into the bladder, the urethra must be promptly opened. When the urethra is already ruptured, no time should be lost in doing a urethrotomy and draining the tissues. An English catheter should be left in the perineal opening for several days.

HYGIENE AND THERAPEUTICS.

Ausset, E.: The Thyroid Treatment in Infantile Pathology and Particularly in Infantilism. (*L'Echo Méd. du Nord.* Vol. v., No. 40 and 42.)

The thyroid body possesses a powerful influence upon nutrition and increases organic activity. It is upon this that the therapeutic method of administering the gland in cases of diminished or arrested organic processes is based. Besides the truly specific action in myxedema, thyroid therapy gives the best results in cases of infantilism, whether these be due to myxedema or to other causes, such as rachitis, tuberculosis or hereditary syphilis, which affect the function of the thyroid body.

The development and growth of the sexual organs is also directly dependent upon the thyroid function, and in case of their arrested development the use of thyroid substance is indicated.

In certain cases of obesity thyroid medication gives good results, but the heart must be watched. For adenoids it is not indicated.

Thyroid medication demands the greatest care in its administration, especially in children, who are very susceptible to it.

The heart and the kidneys must be carefully watched for signs of thyroid intoxication. The minimum dose should be used to begin with, and increased slowly, care being given to the choice of a recent and well-prepared product.

Burns, William Britt: **Narcotics in Pediatrics.** (*Memphis Medical Monthly.* Vol. xxi., No. 11.)

A baby, four weeks old, who was suffering from gastrointestinal irritation, received eight drops of chloranodyn given, in two-drop doses, within an hour. After another hour of quiet and slumber, the infant was awakened by a return of the pain and was given four drops more in two doses within the next half hour. The ingestion of the sixth dose was followed immediately by convulsions, succeeded by total collapse.

The baby remained in this state of suspended animation for three hours. It was without cardiac or respiratory action, completely relaxed, but with some retention of animal heat.

At this juncture attempts at resuscitation were begun, consisting of hot wraps, hypodermics of nitroglycerin and atropin, and various methods of artificial respiration.

After a short rally the original symptoms of convulsions, cyanosis and collapse reasserted themselves. There was a second response to treatment followed by another period of collapse, but the infant finally recovered, twelve hours of unconsciousness having elapsed since the first collapse.

A similar case is mentioned in which a whole night was required to resuscitate an infant one month old who had been given $1\frac{1}{2}$ of a grain of morphin in two doses four hours apart.

Crandall, Floyd M.: **A Century of Vaccination.** (*American Medicine.* No. 23.)

Some of the conclusions of this paper are as follows: Vaccination in infancy with revaccination in adolescence, confers the same degree of immunity as an attack of small-pox. In a small, undetermined proportion of cases immunity is forfeited after five or six years; hence the wisdom of a third vaccination for all persons. Immunity varies directly with the thoroughness of vaccinations (as indicated by the number and size of scars). Mere vaccination in infancy, as well as optional vaccination in general, is insufficient to protect a community.

Roy, Dunbar: Lachrymal Stenosis in Infants and Its Treatment. (*Journal of the American Medical Association.* xxxvii., No. 25.)

The author has cured a number of cases of this affection by the use of an astringent wash to the conjunctiva in conjunction with massage over the lachrymal sac. In no instance was a probe used. In exceptional cases the latter instrument may be required, but the author believes that the canaliculus should never be slit. Judicious attention to the nasal cavities in infants should give relief to many cases of epiphora.

Dock, George: Small-pox and Vaccination with Special Reference to Glycerinated Lymph. (*Journal of the American Medical Association.* xxxvii., No. 25.)

Glycerinated lymph is advocated for its aseptic requirements. Any departure from the typical Jennerian vesicle must be regarded as evidence of imperfect protection. If virus produce an imperfect lesion it should be held equal to no vaccination at all as far as immunity is concerned.

Makers of vaccine should render complete statements as to their products; it is not enough to state that pyogenic germs are absent. Copeman's test, viz.: the variolization of vaccinated monkeys, is recommended.

Vaccine should be prepared by the government, although private manufacture should not be discouraged. Public vaccinators should follow this occupation as a profession and should receive a complete education with this end in view.

England, J. W.: Diphtheria Antitoxin and its Recognition by the U. S. Pharmacopeia. (*The Pharmaceutical Era.* Vol. xxvi., No. 18.)

The German Pharmacopeia is the first to recognize diphtheria antitoxin, although the writer urged such recognition before the American Pharmaceutical Association in May, 1900. It is the only way to safeguard the quality of the antitoxin in the future. The German authority defines diphtheria antitoxin as "blood serum from horses, immunized against diphtheria poison," and provides for a manner of testing and selling. It also requires that a vial of the liquid shall be labeled with the name of the maker, the content of immunizing units in each cubic centimetre, and the total number of units in each vial.

The serums are well numbered by govermental authority, and after their numbers have been called in are not allowed to be dispensed. It is to the credit of the American manufacturers that one of their number was the first in the world to protect the quality of antitoxin by dating each package with its "life," so that old or weakened antitoxin could not be administered.

The numbering system of the German Pharmacopeia does not compare in simplicity and efficiency with the dating system.

Welch, William M., and Schamberg, Jay F.: The Characteristics of Genuine Vaccinia. Experience with Glycerinated Lymph and Some Statistics of the Present Smallpox Epidemic. (*Philadelphia Medical Journal.* No. 204.)

Glycerinated lymph is defended from the attacks of those who condemn it as productive of spurious vaccinations only. The authors cannot confirm the experience of those vaccinators who obtain successful "takes" from old-fashioned points very shortly after apparently positive results from tubes. They cite the cases of fifty physicians, nurses, etc., who had been vaccinated with the glycerinated lymph and despite continuous exposure to smallpox did not contract the disease. Most of these individuals had also been vaccinated in infancy with apparent success.

It is admitted that instances of failure are seen now and then, in which subjects recently vaccinated have, nevertheless, contracted the disease upon exposure. Naturally such failures must be explained through the fact of spurious vaccination, and may follow the use of tubes or dry points alike.

The wholesale failures from the use of tubes must be set down as due to the poor virus of some private manufacture and furnishes an argument in favor of a government vaccine establishment. If we compare the descriptions of typical vaccinia at different epochs we are struck by the discrepancies which occur. Thus we read at times of very rapid evolution of the vesicles, the inflammatory reaction being apparent as early as the second day after vaccination. Such lesions leave but a faint scar which does not protect against smallpox. They have been noted in subjects who were already immune.

In contrast with these spurious results we often see glycerinated lymph give rise incidentally to an intense inflammatory

reaction—a dermatocellulitis in which sloughing sometimes develops. These individuals are usually found to be well protected. Since the plan of sterilization has been adopted the old Jennerian precept of taking only clear lymph from the vesicles no longer obtains, and these severe complications may be due in some way to this neglect.

Infants should be vaccinated during an epidemic irrespective of age, the new-born not excepted. If there is no epidemic at hand vaccination may be deferred until the age of three months. The presence of other diseases is not a contraindication.

During 1901, 300 cases of smallpox had been treated at the Municipal Hospital, Philadelphia, and not one of this number had been successfully vaccinated within a period of five years, although most of them had undergone this experience in infancy. The statistics of the hospital appear to show that good scars protect better than poor ones.

Blackader, A. D.: A Discussion of the Relation Between Human and Bovine Tuberculosis, with Special Reference to Primary Infection in Children Through the Alimentary Tract. (*The Boston Medical and Surgical Journal.* Vol. cxlv., No. 25.)

The history of the bacteriology of tuberculosis is reviewed, with especial reference to the modes of infection. Adami has expressed the tentative opinion that the rapidly progressive form of tuberculosis, which tends to become even more rapidly generalized in children than in early adult life, and which ends in acute miliary tuberculosis or in tuberculous meningitis, may be due to bacilli of human origin. On the other hand, the slowly progressive form, which shows itself as scrofulous lymph nodes and tuberculous peritonitis, often very mild in type, may be caused by bacilli of bovine origin. So that not only must the resistance of the patient, but the source of the infection, be considered.

Much clinical and bacteriological work must still be accomplished before the latest statements of Koch can be either accepted or denied.

Crookshank, E. M.: Human and Bovine Tuberculosis. (*The Lancet.* No. 4079.)

Experiments made by several observers have proved that the intro-peritoneal inoculations of calves with tuberculous

sputum is followed by tuberculous infection of the animal. On the other hand, calves fed on human tuberculous sputum showed no trace of tuberculosis on being killed. The author believes these results to be in perfect harmony with the view that human and bovine tuberculosis are distinct varieties of the same disease. There are cases in which bovine bacilli have invaded the human tissues, after direct inoculation; but such cases are rare. In accepting the theory that abdominal tuberculosis in children is due to infection from tuberculous milk, people appear to set aside the opportunities for infection from a human source. Any suspicion of danger from the milk can be met by better dairy inspection, the destruction of "wasters" and "piners" both in public and in private dairies, and the removal of all cows suffering with any disease of the udders. The danger from meat Dr. Crookshank considers *nil*.

As regards the heredity of tuberculosis, it is of two forms: the transmission of the predisposition, and, in some cases, the hereditary transmission of the virus, which may exist in a latent form for many years.

Williams, E. H.: Post-Scarlatinal Diphtheria and Rhinorrhea and Otorrhea. (*British Medical Journal.* No. 2138. 1901.)

It is advisable to cultivate all cases of rhinorrhea and otorrhea in scarlet fever cases, especially in hospital practice. Systematic isolation of these cases is advisable, and such isolation may reasonably be expected to reduce the post-scarlatinal diphtheria incidence. When bacilli at all resembling the diphtheria bacilli are found, they must be regarded as a modified variety of that organism. It is an open question whether such mild cases require antitoxin treatment, but cases have been observed in which the rhinorrhea was followed by a deposit of membrane upon the fauces, and in such the serum is indicated; it can do no harm, and may do good. Even if these cases have not diphtheria themselves, the bacilli simply being grafted on to an ordinary coryza or cold, they should at least be separated from the healthy. These discharges, unassociated with sore throat or other symptoms, and therefore easily overlooked, may be the cause of the often unaccountable outbreaks, and the persistence of the disease amongst school children.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

MARCH, 1902.

[No. 3.

Original Communications.

A CASE OF CONGENITAL HEART DISEASE.*

BY EDWIN E. GRAHAM, M.D.,

WITH REPORT OF AUTOPSY

BY RANDLE C. ROSENBERGER, M.D.,†

Philadelphia.

C. L., aged one year. Admitted to Jefferson Hospital November 18, 1901.

FAMILY HISTORY.—Father and mother are living and well. A maternal aunt died of phthisis. There was no other history of tuberculosis, nor of any malignant disease obtained.

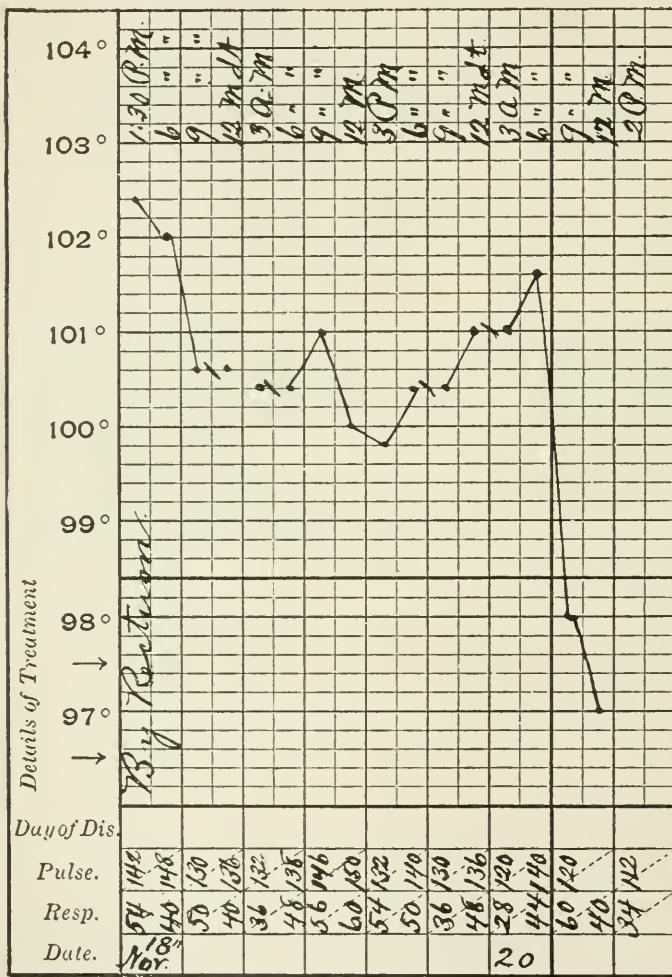
PERSONAL HISTORY.—Child was born naturally, and appeared well up to the sixth month. It then began to have attacks which lasted fifteen to twenty minutes, in which the child would become quite blue all over the body and dyspnea become marked. It would appear weak and depressed for several hours after the attack. These attacks appeared irregularly from two or three daily to one in two weeks. The attacks have persisted since their first appearance. During the week beginning November 10th the child had two attacks of cyanosis, the period of depression lasting much longer than ever before and the child rallying poorly.

On November 17th, an attack of marked cyanosis occurred lasting fifteen to twenty minutes, since which time the child has remained very pale, weak, dyspnea marked and depression very great. The dyspnea has since been a marked feature and at times apparently distressing. The child has an appearance indicative of suffering, the face is drawn, as if from pain. It frets and worries and there is a blue palor about the lips and finger tips. The pupils are dilated and they respond sluggishly

* Read before the Philadelphia Pediatric Society, January 14, 1902.

† From the Laboratories of the Jefferson Medical College Hospital.

to light. They are equal in size. There is no retraction of the head or rigidity of the neck. The heart's action is rapid and an occasional irregularity in the pulse is observed. No cardiac murmur is detected. A few râles can be heard over lungs, no change in pulmonary percussion noted.



TEMPERATURE CHART.—Case of Congenital Heart Disease.

November 19th.—Examination at 11.45 A.M. Child shows evidences of cyanosis in lips, finger tips, etc. Respiration rapid, 66. Pulse 166. Pupils dilated, respond slowly to light, tongue

dry, cries feebly on being moved. No impairment of pulmonary resonance and very few râles in chest, heart sounds rather obscure from rapid respiration, no murmur detected. Knee jerks exaggerated. One attack of cyanosis in last twenty-four hours, blueness well marked for fifteen minutes, slowly fading for several hours; no twitching or convulsive movements noticed since entering hospital. Child can be fed very slowly by dropper taking modified milk mixture $\frac{3}{4}$ i every hour; the eyes are turned upward and to the right, showing very small portions of cornea between half-closed lids. (See chart.)

DIAGNOSIS.—Meningitis non-tubercular. Congenital heart disease.

The autopsy given very fully, by Dr. Rosenberger, showed a beginning meningitis at the convexity; the heart disclosed an interventricular septum deficient at the base, a small opening at the foramen ovale, pulmonary stenosis, and a malposition in the origin of the aorta.

The arrest of development in the case here reported probably occurred between the eighth and twelfth week of fetal life, at this period the septa between the auricles and ventricles have been largely formed and the development of the pulmonary artery and aorta well advanced.

In those cases where a communication exists between the ventricles owing to an imperforate interventricular septum, the opening is usually found at the base, since in fetal life this portion of the septum is formed last. At this portion of the normal heart a triangular area is found, known as the *undefended* space, and this portion of the interventricular wall is more commonly found defective in congenital disease than any other portion of the septum. Perforations may occur at the apex or, in fact at any portion of the ventricular septum, but are rare in proportion to the number of openings found in the *undefended* space.

An opening at the base of the interventricular septum may occur as the result of post-natal endocarditis; a few such cases have been reported, notably by M. Bouillard. In this case, however, there can be no doubt as to the congenital origin if the other defects of pulmonary stenosis, patent foramen ovale and origin of aorta be remembered.

The smooth edges of the opening free from any thickening or deposits of fibrin are also typical of congenital disease, although

it must be noted that such thickenings and deposits of fibrin are met with following endocarditis in cases of congenital origin.

A deviation of the interventricular septum is often found in those cases where the septum is deficient, with consequent change in the position of origin of the pulmonary artery and aorta. Such seems to have been the case in this heart, the aorta arising in part from the right ventricle. This malformation according to Peacock, often coexists with some obstruction to the flow of blood from the right ventricle, as pulmonary stenosis, or more rarely with constriction of one of the auriculo ventricular orifices or of the aortic opening. The presence of pulmonary stenosis in the case presented is therefore explained in the cardiac malformation here described.

PATHOLOGIC REPORT BY DR. R. C. ROSENBERGER.

Body of a well-nourished male infant. Rigor mortis well marked; suggillation is present upon back and buttocks. The panniculus adiposus is abundant; muscles are normal in color.

The abdominal organs are all in normal situation; appendix measures 5 cm. in length and possesses an unusually long mesoappendix.

Both pleuræ are normal. Thymus gland is still evident. It is irregularly ear-shaped and less than 2 cm. in its greatest diameter. It rests upon the superior external surface of the pericardium to which it is adherent.

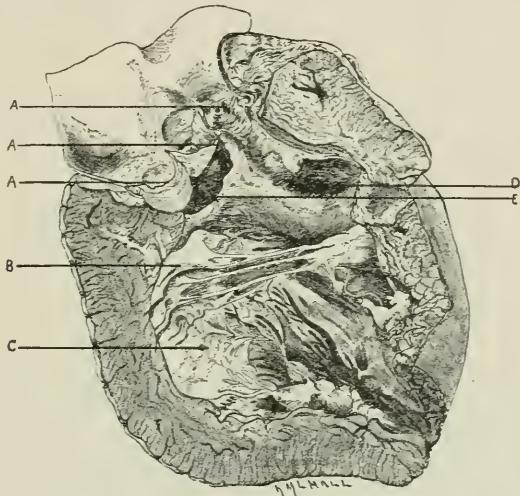
Pericardium normal.

The heart presents a depression near the apex 3 mm. in depth. The apex of the organ is blunt and lies in the sixth interspace, $\frac{1}{2}$ inch within mammillary line. Both ventricles are distended. The organ is shorter than normal, giving it a globular appearance.

The right ventricular wall measures 1.3 cm. in thickness, the left ventricular wall measures 0.7 cm. in thickness. There is a small, crescentic aperture (1.3 cm. by 1 cm.) that forms a communication between the right and left ventricle at the base of the heart. The convexity of the crescent is directed downward and the superior border lies just under the aortic cusps. The margins of the opening are smooth and thin.

The aorta has its origin from both the right and left ventricle, but principally the right just over the opening already de-

scribed, and lies above and behind the pulmonary artery. The pulmonary artery arises from the right ventricle, with which cavity it communicates through a small aperture 3 mm. in diameter. It has its origin anterior to the aorta just beneath a muscle column and not recognizable until laid open and traced; the narrow communication with the right ventricle expands at the area of the valves from which point the vessel follows a



HEART FROM PATIENT OF DR. GRAHAM.

The right ventricle laid open, incision extending outward through the aorta which communicated with both ventricles. The aorta is open and its valve leaflets are shown at *A A A*.

Between *D* and *E* is the incision which extends outward through the pulmonary artery.

B and *C* are leaflets of the tricuspid valve.

D, the sinus that communicates with the pulmonary artery and constitutes the opening of that vessel into the right ventricle.

E, the semilunar communication between the two ventricles just below the aortic orifice.

nearly normal course anterior to the aorta and across the base from right to left. Its branching is normal.

The aorta measures 1 cm. in diameter, the pulmonary artery 5 mm. in diameter. Each of these vessels is supplied with 3 valve leaflets; those of the aorta are normal in thickness while those of the pulmonary artery are thickened and slightly rigid. The mitral valve is normal.

The foramen ovale is closed except for a small slit anteriorly;

this opening is oblique, probably closed during life, and admits the passage of a probe 2 mm. in diameter.

The ductus arteriosus (not shown in specimen) is nearly closed, admitting only a small platinum wire. It is normal in point of origin, course and termination. Weight of heart 45 gms.

The left lung is normal. Weight 12 gms.

The right lung is normal except for one small ovoid area of caseation (1 cm. by 0.5 cm.) in upper lobe presenting on the mediastinal surface. The adjacent lung tissue is normal. Weight of organ 14 gms.

The bronchi show no gross lesion.

The spleen is darker in color than usual, and congested. Weight 35 gms.

Left adrenal normal.

Apart from very slight congestion the left kidney is normal. Weight 20 gms.

The right adrenal is normal.

The right kidney is normal. Weight 20 gms.

Ureters are normal.

Bladder is distended with 60 cc. of clear amber-colored urine, walls normal in thickness; mucosa normal.

External genitalia normal.

The liver is slightly smaller than usual and pale. On section it is comparatively bloodless and yellow in color. Weight 430 gms.

Stomach and intestines normal.

Head. The anterior fontanelle measures 8 cm. antero-posteriorly and 4 cm. laterally. The posterior fontanelle is closed. The brain is edematous upon its convexity. Cerebellum is also slightly edematous. No gross lesions.

Tardy Meningitis After Injury to the Skull.—Dr. K. Fujisawa (*Milnchener Med. Wochenschrift*, November 5, 1901) reports the case of a child of ten, who fell from a second story, injuring the left temporal bone with consequent vomiting, convulsions and loss of consciousness, but apparently recovered completely. A year later meningitis developed and at the autopsy an old traumatic encephalitic focus of yellow softening was discovered which had evidently existed without causing symptoms. The base of the brain had been fractured at the time of the traumatism and, over a year later, infection by pyogenic micro-organisms through this fissure, induced the meningitis.—*The Journal of the Am. Med. Assoc.*, Vol. xxxvii., No. 23.

MONSTER PER DEFECTUM.*

BY A. C. COTTON, M.D.,

Chicago, Ill.

Through the courtesy of Dr. J. M. Lang I am able to present to you this specimen which he delivered. He gives the following history. "I examined Mrs. R., aged twenty-four years, American, primipara, supposed to be pregnant five months and found no signs of fetal life. Twenty-four hours later pains began terminating in the delivery of a dead fetus. (No complications). The mother has always enjoyed good health



Fig. 1.—GENERAL APPEARANCE OF THE MONSTER SHOWING DEFECTIVE EXTREMITIES AND THE WIDE SEPARATION OF THE PARIETAL BONES.

with the exception of the ordinary diseases of childhood. Her parents are still living and well. She has two sisters who have borne normal children. Her husband is thirty years old, Hebrew, saloon-keeper and a steady drinker. He is apparently in good health and gives no history of syphilis or any disease other than those of childhood. His parents and brothers are living and well.

"Two months after delivery, an examination of Mrs. R.'s urine showed it to be smoky in color, with albumin, hyaline

* Read before the American Pediatric Society, at Niagara Falls, N. Y., May 27, 28, 29, 1901.

casts and epithelium. Under treatment she made rapid improvement."

The specimen was kept in 96 per cent. alcohol for two months before it came into my possession. The resultant hardening and shrinking made measurements and weights of little value.

It will be seen at a glance that we have here an abnormality of development—a monster by defect. The most marked defect is the shortness of the extremities, especially of the lower. (Fig. I.) At first view it would appear that the arms and thighs are wanting, the forearms and legs arising from the shoulders and hips respectively.

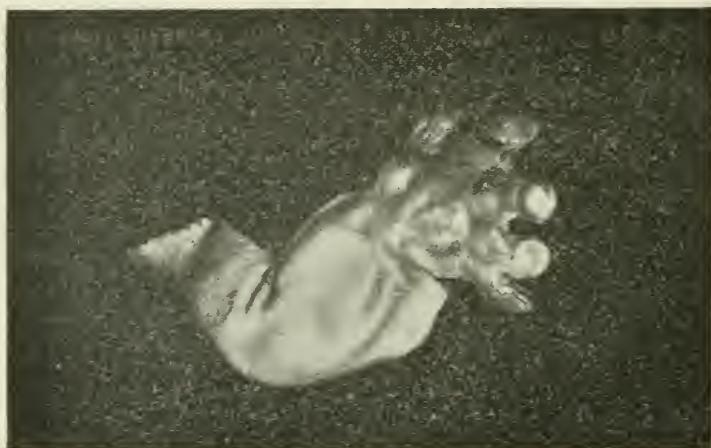


Fig. II.—SHOWING PECULIAR WEBBING AND WIDTH OF THE HAND.

The skiagram, however, shows but one bone in each extremity, probably the humeri and femora, each presenting a marked curvature. No traces of forearm or leg bones are to be found.

The hands and feet show peculiarities in their breadth, the brevity of their digits, a queer clubbing of their distal extremities and a partial webbing, (Fig. II.) The position of the little finger—particularly of the left hand—is almost at a right angle to its neighbors, and the great toe, especially the left, stands apart from the others, appearing more like a thumb.

The wide separation of the parietals, the sulcus extending deep between the frontal bones, with the large size of the head,

suggests a previous hydrocephalus. The disappearance of the fluid and subsequent collapse of soft tissues caused the deep groove seen in the specimen. (Fig. I.) Upon opening the cranium, a cursory inspection shows the cortical substance attenuated as by pressure, and collapsed ventricles, further suggestive of hydrocephalus. The remnant of a blood clot underneath the right parietal is noted.

A very noticeable anomaly is seen at the umbilicus. (Figs. I., and III.), in the form of an omphalocele, with the funis at its

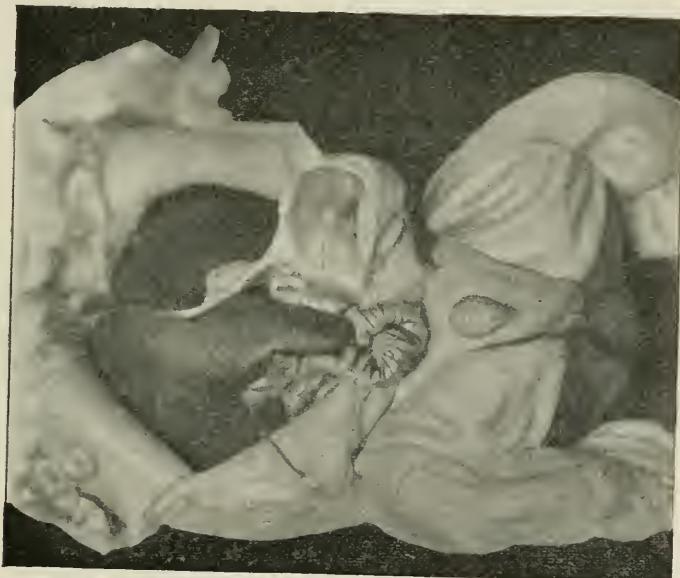


Fig. III.—TONGUE-LIKE PROJECTION OF THE LIVER AND OMPHALOCELE.

upper border. This hernia is the size of a plum, its outer layer being continuous with the amniotic covering of the cord. Section reveals the contents of this sac to be a coil of intestine and a tongue-like projection of the right lobe of the liver. (Fig. III.) The peritoneal surface of the sac and its contents are smooth and free from adhesions. The large size of the liver, even, for a fetus, is noticeable.

Upon opening the thorax the first incision penetrated the pericardial sac, fine pleural adhesions being extensive. Similar adhesions, but firmer, were found over the thymus. The thy-

mus is large and very irregular in shape, terminating above in a tit-like projection which overlaps the thyroid isthmus.

The integument, thick and covered with lanugo, presents a dense leathery consistency, with a deposit of fat, rarely found in a fetus of five months.

As to classification, this monster, like many others, presents a combination of features peculiar to itself. The shortened limbs would class it as a phocomelus. The absence of certain bones of the extremities would place it in the sixth division of Hirst's adaptation of Saint Hiliare's classification, viz.: anomaly by numerical defect. The omphalocele brings it into the class celosoma.

The absence of these bones of the extremities, or of their ossific centres and the failure of union of the ventral plates would locate the etiologic disturbance early in the second month of embryonal life, or before. It is probable the hydrocephalus developed later, as its earlier existence would have resulted in a monster of an anencephalic type.

Certain features, as the broad squat appearance, bluntness of outline, thickened, brawny integument, excess of subcutaneous connective tissue and the heavy prolabia suggest myxedema, but this has no obvious relation to the class phocomelia.

While at the first glance the shortened extremities with apparently normal length of trunk call to mind achondroplasia, still the osseous deficiencies both in extremities and cranium would rule this out.

Etiology of Chorea Minor.—Chorea is another disease which has followed rheumatism in being added to our list of infectious diseases. Such etiological factors as fright, and the strain of modern school life, are only incidental causes. There can be little doubt that the influence of a fright has been greatly exaggerated; formerly the chill at the onset of pneumonia was connected with the cause of the consolidation in the lungs, but it is now known that the chill is only a symptom of the disease. Similarly, a fright sometimes induced by very trivial cause, must be regarded as a symptom rather than a causative factor of chorea.—*Clinical Review.*

PULMONARY GANGRENE.*

BY FRANCIS HUBER, M.D.,

New York.

During the past two years 3 fatal cases of gangrene of the lung were met with in the children's service at the Vanderbilt Clinic. In one, a boy of seven, the physical signs lead to the conclusion that both sides were implicated. Death finally occurred. No autopsy was permitted.

In the second, a child of some three years of age, seen at irregular intervals, there was a large cavity on the right side, and though the breath was extremely fetid, the amount of trouble on the other side was considered to be of such a grave nature that operation was not thought advisable. The case terminated fatally.

In the third case, a child of four years of age, considerable improvement took place under the use of guaiacol and tonics. The family were opposed to operation and subsequently we learned that the child had died rather suddenly and unexpectedly. No autopsy. Unfortunately the notes in these cases are imperfect, as we could not keep the patients under close observation.

In a fourth case the termination was more favorable. A boy of some five years of age was presented with a history of having been squeezed in a gate while eating some peanut candy. As his symptoms developed about this time the mother suspected that some of the candy had accidentally entered the larynx.

There were marked evidences of localized trouble in one lung and the odor of the breath was somewhat offensive; general condition fair. Under tonic treatment the patient improved. Some three weeks later the grandmother brought the boy to the children's clinic with the report that a day or so before he had coughed up a portion of a peanut. From this time on,

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

there was a rapid disappearance of the pulmonary signs, with complete restoration of health.

In the following case, though it could not be definitely verified, a small gangrenous focus with abscess was suspected. For a number of months an undersized girl, five years of age, with large adenoids was kept under careful observation. In the beginning a pleuropneumonia of the right lower lobe was diagnosed. The high leucocytosis and the physical signs, five weeks after the onset, with but slight displacement of the apex to the left, lead to the belief that a localized purulent collection had taken place. Exploratory puncture was performed upon three occasions at intervals of a few days. The first attempt revealed a bloody fluid, the second some turbid sanguineous liquid and the third was also negative.

For some time a peculiar, sweetish, offensive odor was noticed in the breath, sufficiently marked to be appreciated several feet from the patient. It gradually subsided and finally could only be noticed after a severe paroxysm of coughing. It may be stated that the cough was usually spasmodic in character and particularly severe at night—at no time was there a whoop nor was whooping-cough present in the other members of the family.

Under careful nursing, tonics of iron, guaiacol, creasote, etc., the unpleasant symptoms subsided and a fair condition of health was established. Though some pleural thickening persists, it is not possible to detect any dilated bronchus or cavity.

Localized gangrenous processes in the lungs, unsuspected during life and unattended by fetid breath and other symptoms characteristic of the condition, are now and then found on autopsy. Vargas, in the Festschrift in honor of A. Jacobi, reports a striking instance under the title "Gangrena Pulmonar Difusa Latente," in which the characteristic sputum and odor to the breath were absent. A correct diagnosis was not possible until the autopsy revealed the true condition.

Some cases of empyema may be attributed to this cause. A number of years ago such a case terminating favorably came under personal observation. The true nature was not suspected until a large piece of necrotic pulmonary tissue was washed away in irrigating the pleural cavity—such being the routine practice at that time.

Finally another case may be briefly referred to, though

the cause of the trouble was not evident. Operative interference at a time when the outlook was not very favorable, was followed by the happiest results.

Benny S., three years old, born in the United States of Russian-Polish parents, has always lived in the thickly populated section of the eastern district, a veritable ghetto in New York City.*

THE FAMILY HISTORY is unimportant, nor has the early history of the patient any particular bearing upon the present trouble. For a number of months prior to his admission to the "Jacobi Ward," he had been troubled with cough at times paroxysmal in character and frequently attended by vomiting—no whoop or other symptoms pointing to pertussis. Temperature was of an irregular type, chilliness and sweating reported. Loss of strength and flesh considerable. A short time before admission, the attending physician, suspecting pus, made an exploratory puncture with negative results. Soon after the mother claimed to have observed pus in the sputum and a decidedly offensive odor to the breath. As he did not improve at home, he was advised to be sent to the hospital and was admitted May 14, 1900, pale, emaciated, hectic in looks, weighing about twenty-three pounds. Pulse weak and rapid, temperature 102°, respiration 52. Cough severe and paroxysmal, strong fetid odor to breath, considerable degree of dyspnea. Outlook not very promising.

PHYSICAL EXAMINATION.—Right lung, posteriorly, dulness above over upper lobe and in axilla to about seventh rib; coarse respiration and bronchophony over dull area. Anteriorly, dulness generally. Breathing somewhat exaggerated over apex; fine rales about the level of third rib; dry rales in axilla. Left lung, posteriorly, fine and moist rales (small and large); bronchophony present, particularly marked over lower lobe. Anteriorly, over second rib, bronchial breathing with coarse rales. In axilla respiratory murmur feeble, otherwise unchanged. Hemoglobin 50 per cent.—r. c. 5,000,000. w. c. 19,600. Sputum, elastic fibres, otherwise negative; no bacilli.

TREATMENT was supporting and symptomatic. In about a week the right lung had cleared up pretty well and the general

* Those familiar with Manhattan Island will readily recognize the crowded and unsanitary condition prevailing here, though they are greatly improved compared to what they were ten years ago.

condition was more favorable. The physical signs varied and though a local abscess with gangrene was suspected, its position could not be exactly made out. June 9th after a careful, physical examination, an exploratory puncture posteriorly on the left side below the angle of the scapula revealed thick pus a short distance below the surface. It is to be regretted that a bacteriological examination was omitted.

Two days later under chloroform narcosis, Dr. Hubbard, the House Physician, removed a section of the ninth rib and exposed the pleura. Exploratory punctures in various directions failed to reveal the site of the abscess. The general condition of the child not being very good, it was concluded to tampon the wound and await developments. In cleaning up and dressing the child the discovery was made that a quantity of pus had escaped through the nose and mouth, the abscess cavity having emptied itself during the time of operation.

Subsequently within the next few days several punctures were made and though no pus was found, it was noticed that each insertion of the needle was followed by the escape of a small quantity of air, offensive in character. No pneumothorax present at any time. A small drainage tube was therefore inserted. Next day some fetid pus discharged and the amount gradually increased. On the 23d a portion of the adjoining rib was resected to facilitate drainage and a second tube inserted. From this time on, the condition gradually improved. Because of the offensive odor from the wound, similar to that emanating from the mouth, the cavities were irrigated. It was observed that when any force was employed, a paroxysmal cough would be induced and the fluid would come up through the mouth. Improvement was gradual and about July 6th the boy began to walk about ward. From this time on the improvement was rapid. The odor became less and less offensive, the discharge diminished and the rubber tubes were replaced by drains of horse hair. August 29th the upper sinus was healed and on the 31st the lower. Patient was discharged well on September 5th with good expansion. General condition excellent.

In the early part of the year he was again presented. There had been no return of his trouble. His health was good and with the exception of the scars of his wounds, there were no physical signs of the serious condition through which he had passed.

Suppuration of the lung with gangrene cannot be regarded as a disease *per se*; the symptom complex ought rather to be looked upon as a complication occurring in a variety of states in which necrotic areas undergo putrefactive changes.

It is not easy to explain the comparative infrequency of the condition, for germs of different degrees of virulence are always present in the air passages. As a rule the lower lobe is more frequently affected and the lesion is peripheral rather than central.

A lowered tissue resistance, the result of local or general causes is frequently noticed. In the case of Benny S. there was no bone disease or cardiac lesion present, that might have given rise to pulmonary embolus, nor could any history of typhoid be elicited. Aspiration pneumonia, particularly when due to foreign bodies of animal or vegetable origin, rapidly takes on putrefactive changes and causes local gangrene. Diabetes and bronchiectasis could be excluded. In the absence of any of the recognized conditions, the gangrene in this case must be attributed to the debility resulting from preceding protracted pulmonary changes of an obscure nature.

Bacterial Flora in Mouth of the Newborn.—O. Kneise (*Beitr z. Geburt u. Gynack*), says that in 97.5 per cent. of a large number of infants examined, abundant bacterial flora was discovered in the mouth at the moment of birth. Staphylococci and streptococci were particularly numerous and virulent in many cases. The bacteria found were always identical with those discovered in the vaginal secretions at the same time, and are evidently due to the aspiration of these secretions in the infant's attempts to swallow, or they are forced into its mouth by pressure of the vaginal muscles. These germs in the infant's mouth are probably the source of mastitis in many cases, and in its treatment, the child must be kept from the affected breast if necessary. They also prove the fallacy of the assumption of the auto-sterilization of the vagina.—*Journal American Medical Association.*

PULMONARY GANGRENE IN AN INFANT.*

BY WALTER LESTER CARR, M.D.,
New York.

A. J., one year old, was admitted to the Infants' Hospital, Randall's Island, on October 18, 1899. Dr. Appleton, of the House Staff, obtained the following history:

The baby was born on October 12, 1898, and abandoned by the mother when six months old. The father was a white man, the mother a colored woman. During the summer of 1899 the child had bronchitis and "bowel trouble"; the exact character of the latter could not be determined. There was no history of any other disease. Dentition began when ten months old. For about three months there had been a great deal of perspiration of the head during sleep.

Examination on admission showed the infant to be fairly nourished. The skin was clear but of a more sallow color than was accounted for by the race. The fontanelles were quite wide open, the head square; epiphyses enlarged; slight beading of the ribs and lateral curvature of the spine. There were only two teeth, the two lower incisors. The heart was normal; the left lung was normal; the right lung showed poor expansion and slight dulness in the lower lobe behind, but no râles were present. The liver was slightly enlarged; the spleen was not palpable; the temperature was normal.

October 19th, 7 A.M.—Temperature 103.4°F. As the baby was constipated, the colon was washed out with a high enema; the result was a yellow stool with a great quantity of mucus. The temperature fell until at 1 P.M. it was 100°; at 5 P.M. 99.2°. While pulse and respiration seemed unmodified, no trouble was detected with the lungs.

October 20th to 28th.—Child well during the whole time. Temperature normal, appetite good and food well digested. On the 28th there was a greenish yellow stool and a slight rise of temperature. Physical examination negative.

October 30th.—Temperature 101°; bowels rather loose, with

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

mucus in the stools; pulse and respiration normal. There was a slight cough. The colon was irrigated.

October 31st.—Temperature about the same, varying from 100° to 102° , highest at 4 A.M. Pulse strong, 128 to 136. Respiration remained at 28. Stools continued to show mucus. The temperature dropped under colon irrigation. The child was fretful. No change in the lungs.

November 1st.—Temperature 100° to 103.5° , highest at 7 A.M.; pulse 128 to 136; respiration 28 to 32. Stools about the same, apparently no change by irrigation and a dose of castor oil. Some abdominal distention. Cough rather more frequent, with vomiting of mucus. Child very restless. Physical examination showed exaggerated breathing over the whole of the right lung. No râles detected, no dulness. Left lung, mucous râles.

November 2d.—Temperature 100° to 100.2° ; pulse 132 to 134; respiration 34 to 36. Stools green and yellow, free of mucus. No abdominal distention. Cough about as before noted. Baby took food well, no vomiting; slept quietly. Physical signs the same.

November 3d.—Temperature ranged from 100° to 103° , the temperature being 103° at 2 A.M., 100° at 4 A.M. and 103° at 6 A.M.; respiration 32 to 36; cough still frequent. Vomited mucus but retained food. Baby was very restless all day. A few mucous râles over right lung in front and posteriorly; vocal fremitus increased over the right lung, with dulness at the base and slight dulness at apex. Bronchial breathing at the right base and bronchovesicular at the apex. Left lung was normal except for a few soft râles at base.

November 4th.—Temperature 99.2° to 102° ; pulse 130 to 132; respiration 28 to 34. Baby appeared better. Physical signs about the same.

November 6th.—Temperature ranged from 99° at 6 A.M. to 103° at 11 P.M.; pulse and respiration not increased over the previous days. The baby moved head constantly and moaned. The stools were normal but there was some vomiting. Pulse not of good quality, so that strychnin and whiskey were given according to indications.

November 7th.—Temperature 101° to 103.6° ; respirations 28 to 36; pulse not above 128 and stronger. Physical signs showed in front diminished expansion over the right lung, with higher pitched expiration and a few mucous râles. Behind, over

the right lung, vocal fremitus increased, dulness extended from spine of the scapula to the base of the lung. Intensified voice sound, expiration prolonged and a few fine crepitations heard at the base. In the left lung hyper-resonance noted in spots below angle of scapula. Areas of dulness with fine râles; occasional mucous râles.

November 8th.—The baby dull and apathetic; took about two ounces of food at a feeding; retained it during the morning but vomited it at night. General physical condition as recorded.

November 9th.—Temperature from 100° to 102.4°; the latter at 3 A.M.; pulse and respiration about as noted at other times; very restless; cough more frequent; respiration shallow. Physical signs the same except that the voice sounds were less exaggerated and crepitant sounds were heard in posterior axillary line, and also anterior to the area over which they were formerly noted.

November 10th.—Temperature from 102° to 105.2° in the morning 105° at 9 P.M.; respiration and pulse about the same as on other days. Respiration was not so labored. Physical signs were the same except that the crepitation was more marked over the posterior surface of the right lung. The stools contained mucus and undigested casein, and were somewhat offensive.

November 11th.—Baby was dull; extremities cold; vomited once in the morning; stools offensive; pulse was irregular.

November 13th.—Cough was easier; child expectorated considerable mucus without odor. In the early morning was very restless; later in the day dull and weak. Vomiting seemed to be occasioned by the cough.

November 15th.—No vomiting; abdomen much distended; respiration labored; pulse weak; head slightly retracted; right leg drawn up; reaction to stimuli very slow; there did not seem to be complete analgesia nor anesthesia. Physical signs as noted.

November 16th.—Quiet but weaker; slept a great deal; retained nearly all the food; cough was frequent; pulse rapid and weak; respiration not labored; some strabismus and pupils reacted very slowly. Fontanelles depressed; head slightly retracted; the right leg drawn up. Physical signs in the lungs seemed about the same. No resolution was to be detected.

November 17th.—Less evidence of cerebral irritation.

November 18th.—Infant more apathetic; cough not trouble-

some; respirations from 30 to 40, not so shallow; pulse weak. Irritative symptoms slightly increased; more depression of the fontanelles, retraction of the head and strabismus. The right leg flexed on the abdomen, but no paralysis. Physical signs: the left lung showed more consolidation at the base and the right lung at the apex.

November 19th.—Temperature 100° to 104°; pulse 120 to 138; respirations 28 to 40. Patient very weak and dull; took very little food; stools very dark and loose, but without any undigested material. Abdomen much distended, not relieved by irrigation; coughed very little, could not expectorate; respiration labored; pulse weak; increased depression of fontanelles; strabismus, reaction to light very slow; head retracted. Baby lay most of the time in a stupor. Both legs were flexed on the abdomen. Reaction in left leg normal, in right very slow, no paralysis, no convulsions. Death at 8 P.M.

At no time during the child's illness was there any fetid odor of the breath, neither was the expectoration fetid. The sputa were white or whitish yellow, had no green nor brown tinge and were not streaked with blood. The baby, however, raised much more than was usual for one of its age. The character of the temperature curve and also the general condition pointed to a septic process, but this could not be definitely determined to be a gangrene in addition to a septic bronchopneumonia. It was thought that the symptoms were increased by the disturbed digestion and the intestinal catarrh, which persisted almost the whole period of the pneumonia.

AUTOPSY REPORT.—The autopsy was performed about eighteen hours after death.

BODY of a poorly nourished mulatto child, without skin lesions.

BRAIN.—Pia very cloudy, especially over the cerebral cortex; blood vessels moderately congested; ventricles normal.

HEART.—Normal.

LUNGS.—No pleurisy; *left lower lobe* almost completely solid with red bronchopneumonia, and containing, in its posterior half, a darker, brownish, softened (gangrenous) area $2\frac{1}{2}$ x 1 x 1 inches in diameter, extending to within one-eighth inch of the pleural surface. Several small pulmonary veins in this lobe contained soft, dark thrombi; *upper lobe* shows a small area of gangrene just above the posterior, inferior border, but it is

in an earlier stage than that in the lower lobe. Edema throughout both lungs was very marked. *Right lower lobe*, acute bronchopneumonia occupying about half the lobe, with a gangrenous area about half as large as that in the left lung; *upper lobe*, bronchopneumonia in the apex only. *Bronchial lymph nodes* small and red.

LIVER.—Marked degree of fatty infiltration.

SPLEEN.—Normal.

STOMACH.—Post-mortem softening of entire cardiac end.

INTESTINES.—Increased amount of mucus throughout; no ulcers; in colon the solitary follicles were swollen. Mesenteric lymph nodes normal.

KIDNEYS.—Gray, capsules free, cortex not thickened, markings fairly distinct.

ANATOMICAL DIAGNOSIS.—Bronchopneumonia; pulmonary gangrene; fatty liver; catarrhal entero-colitis.

The literature of pulmonary gangrene is quite exhaustive, but most of it dates from the time of Rilliet and Barthez (*Traité des Maladies des Enfants*, 1843), who were the first to study the subject with care. They had 11 personal cases and were able to find 5 in literature, reported by Constant, Chavigner and Berton, the references, however, being omitted. In the same year Bondet published (*Arch. Gen. de Med.*, 1843, Vol. II., p. 385), 5 other cases, making the material amount to 21 at that period. In the edition of Rilliet and Barthez's work dated 1884, reference is made to a thesis by L. Atkins (*Ueber Gangrena Pulmonum bei Kindern*, Zurich, 1872), and this is doubtless the author quoted by Eustace Smith, as having reported 31 cases.* The authors speak of 26 cases in making calculations, this number probably representing their personal experience.

Vogel and Biedert report a case in a boy of fourteen, where the gangrene had lasted six years after pneumonia due to the pressure of a head of wheat in a bronchus. The case was ultimately cured by operation.

West's case (*Diseases of Children*) was that of a three-year-old girl in poor general condition, who developed pneumonia and died after an illness of two weeks' duration. At the autopsy the bronchopneumonia was found to be limited especially to the

* In a personal communication, Eustace Smith states that he obtained his information from the inaugural thesis of Atkins. It seems impossible to get a printed copy.

right lung, and a gangrenous cavity was present in the upper lobe.

McNalty (*Med. Times and Gazette*, 1872, Vol. II.,) describes a case of pulmonary gangrene with pneumonia following measles in a boy three-and-a-half years old. There was extreme fetor of the breath and expectoration, which contained clotted blood and debris from the lungs. On the day preceding death he vomited blood and also passed clots by the bowels. The autopsy showed pneumonia and gangrene in both lobes of the left lung.

Von Muralt's case (*Corresp. Blatt. für Schweiz. Aerzte*, 1882, No. 10) followed empyema, the child being only two years old. Recovery resulted after incision. An older patient was observed by Day (*Practitioner*, 1885), a girl of ten, in whom fetid breath was a marked symptom during an attack of pleuropneumonia which ended fatally. The autopsy disclosed two abscesses in the right lung, containing fetid pus and surrounded by gangrenous lung tissue. There were areas of pneumonia and gangrene throughout the entire lung. Henoch's case followed typhoid fever in a child of four years; hemoptysis was present. Ewart and Benham (*Lancet*, 1887, Vol. I.,) also report a case following typhoid fever and occurring with empyema. The boy recovered, perstilation having been used and fetid pus and shreds of gangrenous lung tissue removed.

The case which Holt observed (*Archives of Pediatrics*, 1885) occurred in a boy three-and-a-half years old who presented the symptoms of pleuropneumonia. At the autopsy gangrenous areas were found in the right lung. There had never been any fetor of the breath.

Pasteur describes (*British Medical Journal*, 1888, Vol. ii.) the illness of a seven-year-old boy whose pulmonary gangrene was probably due to the passage of a foreign body from the esophagus into the bronchus, an opening between the two having been found at autopsy. Fetid breath and hemoptysis were prominent symptoms, and a cavity of the right lung was diagnosed. An incision was made in the right second intercostal space, one inch from the sternum. A large quantity of putrid fluid and gangrenous lung were expelled. Improvement was marked at first, but death occurred thirteen days after operation; it had probably been done too late—in the fifth week of the illness.

De Jersey's case (*Lancet*, 1892, Vol. I.) followed pneumonia and empyema in a child twenty-one months old. The breath

and the discharge from the empyema wound were very fetid. At autopsy, gangrenous areas were found throughout the entire left lung, but no pulmonary embolism.

Thomas (*Rev. Méd. de la Suisse Romande*, 1895, Vol. XV.) reports a case which recovered after an attack of pneumonia and pulmonary gangrene evidenced by fetor of the breath and sputum; the latter was very abundant. Empyema developed and the pus had an offensive odor. Incision resulted in cure.

A case of diffuse, latent pulmonary gangrene has been reported by A. Martinez Vargas (*The Jacobi Festschrift*, 1900). The patient was a three-year-old child with pneumonia; hemoptysis occurred, but the breath was not fetid. The author lays great stress upon the fact that the marked general symptoms were out of all proportion to the pulmonary signs. The gangrene was found at autopsy.

Seitz (*Kurzgefl. Lehrb. d. Kinderheilk.*, Berlin, 1901) found pulmonary gangrene almost as common in children as in adults. It may follow any of the acute infectious or respiratory diseases, infectious emboli or foreign bodies in the lungs, or chronic intestinal catarrh. As for the bacteriology, any one of the pyogenic group of bacteria and some saprophytes may be found in the gangrenous areas. Seitz says that the most striking diagnostic point, the gangrenous odor, does not differ essentially from that which accompanies bronchiectasis and putrid bronchitis. It is apparent from the case reported in this paper and from the literature that the gangrenous odor is by no means a constant symptom of pulmonary gangrene in young children, even when the necrotic process is quite extensive, as in Vargas' case.

A positive diagnosis of the condition is of importance in view of the treatment. Herczel (*Wien. Med. Presse*, 1900) collected 91 cases of pulmonary gangrene which had been operated upon, with 61 per cent. of recoveries. He believes that the expectant treatment, which almost invariably leads to a fatal ending, is no longer justifiable. Gangrene following croupous pneumonia gave the best results by operation, and that due to perforation of the esophagus the worst.

A CASE OF VERY PERSISTENT LARYNGEAL STENOSIS.*

BY J. P. CROZER GRIFFITH, M.D.,

Clinical Professor of the Diseases of Children, in the University of Pennsylvania,
Philadelphia.

The following case of laryngeal stenosis, or what may, perhaps, better be called laryngeal stridor, seems sufficiently unusual, and of a nature obscure enough to warrant placing it upon record:

Lily S., age twenty months, white, began about February 15th to suffer from difficulty in respiration. She was attended by the family physician, who, after some time, pronounced the disease laryngeal diphtheria and sent her to the Municipal Hospital on March 12, 1901. Here, according to information received, she had no exudate visible in the throat or larynx, the nares showed no evidence of diphtheria, and two cultures on the second and the ninth day of her stay were negative. Her voice was husky, almost inaudible, and the respiration was slightly embarrassed. Her laryngeal symptoms improved, but had not entirely disappeared at her discharge after twelve days. Then respiration gradually grew worse again, and she was brought to the Children's Hospital about seven weeks after the beginning of the illness.

April 5, 1901.—On admission she was suffering from severe dyspnea, which was always present although varying in intensity. With respiration at its worst the child was decidedly cyanosed and had an anxious expression of face. At its best she would sit up and handle toys, yet even then there was free playing of all the accessory muscles of respiration.

April 6th the following note was made: Breathing slightly better although still very labored with both inspiration and expiration. There is extreme retraction of the epigastrium, together with sinking in of the sternum and bulging of the cartilages, attending each inspiration. The child's head is extremely rachitic, but there is no beading of the ribs or en-

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

largement of the wrists. The color is fairly good. Chvostek's facial symptom is absent.

Dr. Walter J. Freeman, laryngologist to the hospital, made a laryngoscopic examination on this date and reported that the cords were reddened and swollen, and that the condition appeared to be one of subacute laryngitis with thickening. There was no membrane visible, and no reason to suspect papilloma or paralysis.

Up to the 9th of April the dyspnea continued unabated in spite of the constant employment of vapor and the administration of strong sedatives. Upon the 9th the condition was so threatening that intubation was performed by Dr. J. H. Jopson. This gave immediate relief; yet the distortion of the chest by the dyspnea had been so marked that it was not until the next day that the depression of the sternum disappeared.

The patient wore the tube from the 9th to the 19th of the month, except for the coughing of it up on a number of occasions, after each of which dyspnea and cyanosis always returned, necessitating prompt replacing of it. On the 19th the tube was removed during two hours and then replaced. On the 27th it was removed permanently. On the 29th the breathing was only slightly affected and the child was sent home.

May 4th, the child was seen in the dispensary. She had been doing well, having stridor only when coughing or swallowing.

May 5th, the child was entered again in the wards, suffering from pneumonia. From this she recovered, and during the attack there was little affection of the larynx.

May 20th, there was only a very husky voice present, but no stridor. Chvostek's and Trousseau's symptoms were absent.

The previous family and personal history add to the interest of the case. Repeated questionings did not shake the mother's statement that about August or September, 1900, the child suffered in a similar way for about four weeks, the stridor being persistent although not nearly so severe as in this last attack. Further, that she is one of several children in the family, and that five others suffered at times during infancy, "when cutting teeth," from symptoms of troublesome stenosis, lasting for perhaps a couple of weeks at a time. The affection in all of them was different from ordinary croup in that it

persisted uninterruptedly both night and day. The sound of the cough was often like the noise made by a "rooster."

The interest of this case centres, of course, in the diagnosis. Pressure on the trachea or bronchi by large tuberculous bronchial lymph nodes might readily have caused persistent stridor. So, also, probably, could pressure by an enlarged thymus gland; but in neither case could intubation have given complete relief, followed, on each occasion that the tube was coughed up, by return of the dyspnea. This fact places the stenosis pretty clearly in the larynx. Pressure of enlarged lymph nodes upon a branch of the pneumogastric nerve has been assigned as a cause of reflex laryngeal spasm, or, in some cases, of laryngeal paralysis; but as Marfan points out, it is difficult to see why a unilateral pressure such as this is likely to be, should cause a bilateral disease. Moreover the occurrence of two attacks in the child's history and the recovery from each excludes this condition.

Of all the affections of the larynx the one most prominently suggesting itself when the child was admitted to the hospital was, of course, diphtheria. But the absence of any bacterial growth in the cultures, the fact that the laryngeal examination in neither hospital showed any membrane and, more than all, the history of the attack excluded the disease.

An abductor paralysis after a precedent diphtherial was equally impossible for the same reasons. Papilloma of the larynx would scarcely have produced dyspnea so severe and so persistent as this case exhibited, unless the mass had been so large that the laryngeal examination would have readily exhibited it. In such an event, also, such marked improvement could scarcely have taken place. Edema of the larynx can hardly be seriously considered in the absence of any disease producing it, and in view of the fact that examination of the larynx showed nothing of the sort discoverable. Laryngismus stridulus, in the ordinary sense of the term, can be readily excluded. The chief diagnostic characteristic of this disease, upon which writers seem to agree with great uniformity, is the occurrence of brief, severe laryngeal spasms with intervals more or less long of complete absence of laryngeal symptoms. This was completely absent in the case now reported.

Finally we have to consider acute laryngitis with spasmodic symptoms, such as is exemplified in many cases of false croup.

As well known, there often lasts in this disease for a day or two a slight tendency to persistent stridulous respiration. Why this should be present in some cases and absent in others seems to depend upon the innate tendency of the individual child. We have also the well-known cases of acute laryngitis consecutive to measles, in which there is persistent, severe stenosis of the larynx, accompanied by fever, often requiring intubation, and not infrequently fatal. In the case under consideration we certainly had present on the first examination an intense congestion of the mucous membrane of the larynx. It seems very probable that in this case there was also a specially marked personal and family tendency to laryngeal spasm, such as is often seen in many families in which croup occurs. The family history accounts in part for the neurosis. Still more does the remarkable development of rachitis as shown by the shape of the child's head, although the other bony evidences of it were not marked.

In fine, then, we probably have to do in this case with an acute or subacute laryngitis with which was associated a remarkable personal and family tendency to laryngeal spasm, allied to laryngismus stridulus, and depending in part, like it, upon rickets, but differing in its tendency to persistence.

The diagnosis is, however, only provisional and open to question.

DISCUSSION.

DR. ROTCH.—I think this case belongs to a very important class that should be investigated, and should be reported as often as possible. They are difficult to diagnose, and on that depends, of course, the treatment. I would like to suggest that besides the conditions described, that of congenital stridor should be considered. Cases have been reported, and are quite authentic, where in babies you have almost a choreic condition of the glottis and upper part of the pharynx. They last for some time, occasionally for months. Congenital stridor occurs only in the first few months of life and the peculiar sound is made continuously. In the cases described by Dr. Griffith we at times suspect a laryngitis of the Klebs-Loeffler variety, and yet, when cultures are made as far down the throat

as you can get, the result is negative. Laryngoscopic examination even by an expert may result in the report that nothing can be seen. I have seen one such case in a baby six or seven months old where the dyspnea was extreme, where the cultures were negative and where nothing was seen in the larynx and no other clinical symptoms of diphtheria existed, and yet the autopsies showed diphtheria. Perhaps all of us have met with young babies where diphtheria existed deep in the larynx without the usual clinical evidences. As we must recognize the difficulty of making a diagnosis in these cases, I wish to insist that antitoxin should be administered.

A case almost identical with Dr. Griffith's came under my care with this difficult breathing without any apparent cause. It appeared to be a mild laryngitis in an excessively neurotic baby. It was treated with a continuous atmosphere of steam, and it was not necessary to perform intubation or tracheotomy. It was a simple case of laryngitis. Of course, those cases are unusual. In these cases you are met with a difficult problem, for you do not wish to operate unless it is absolutely necessary, and in such a case where the diagnosis is necessarily difficult, even if the cultures are negative, you should not be afraid to use antitoxin.

DR. BUCKINGHAM.—I wish to report a case that came into the Children's Hospital six weeks ago: a colored child, admitted for a very marked condition of rickets. It developed this laryngeal condition, and an examination of the secretion showed nothing but staphylococcus. It was given antitoxin with no benefit for a time, but after ten days it improved, and I suppose it was a case of ordinary laryngitis with a great deal of edema of the larynx. I do not think it was a diphtheria case because it had a good pulse, which is unusual in diphtheria.

DR. ROTCH.—I think you may get absolutely negative symptoms at times in babies with laryngeal diphtheria, and even the pulse is not a good indication.

DR. KOPLIK.—In some of these cases of laryngismus stridulus the spasm is not altogether confined to the larynx. I understood Dr. Griffith to say that after the intubation tube was introduced in his case the epigastric retraction did not disappear until the next day, and this makes me think there was possibly not only a spasm of the larynx but a spasm of the diaphragm.

DR. GRIFFITH.—The question of the use of antitoxin did not arise in this case, because the child had been ill for seven weeks when I first saw it. Had I seen it at the beginning of the illness of course I should have given an injection. Congenital laryngeal stridor occurs earlier in life than the age of this child, and for this reason I did not refer to it in discussing the case. In

regard to Dr. Koplik's remark, I said that the dyspnea had been so intense prior to the intubation that the costal cartilages had been distorted and remained bent for twenty-four hours after the dyspnea was relieved. I did not mean that the dyspnea continued. We believe that we have a tetany which is continuous, and another form which is intermittent. If laryngismus stridulus is, as some believe, a form of tetany, we can easily understand that a continuous form of it could occur. From this broader point of view one might call the condition in the case I have reported a persistent laryngismus stridulus.

On the Etiology of Pneumothorax in Childhood.—Zuppinger (*Wiener Klin. Woch.*, January 2, 1902,) reports the case of a female child, two and a half years old, previously healthy, who awoke suddenly in the night with a cry, complained of severe abdominal pains, moaned piteously, breathed with difficulty and was not to be calmed. The lips were blue, cheeks pale, and cold sweat came out upon the forehead. It was at once brought to the hospital, where total right-sided pneumothorax was diagnosed. Death in thirty-six hours. About half a liter of a turbid, semipurulent fluid was found in the right pleura, the right lung was collapsed and its base covered with a purulent pseudomembrane, and the sharp point of a foreign body was felt protruding therefrom, which was found to be an awn from an ear of wheat, of about 4 cm. in length. Further investigation showed that this had probably been aspirated during the night, as the child slept on a worn-out straw sack. Foreign bodies, as a piece of bone, have also been known to pass from the esophagus into the pleura. Likewise have intestinal worms bored their way through walls weakened by disease and penetrated into the pleura. The most frequent causes, however, are tuberculosis, measles, diphtheria, gangrene of the lung and emphysema, following whooping-cough.—*American Medicine.*

A CASE OF CONGENITAL HEPATIC CIRRHOSIS WITH OBLITERATION OF THE BILE DUCTS.

BY MARTHA WOLLSTEIN, M.D.,

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New York.

Adelaide S., two months old, was admitted to the Babies' Hospital with a history of icterus and vomiting since birth. There was no evidence of syphilis in the family history nor in the appearance of the child. The father had died of phthisis. On admission the skin was of an orange-yellow color. The general condition was poor. The spleen extended half an inch below the free border of the ribs, and the liver two inches below. The latter felt hard, both lobes being evidently much enlarged.

Vomiting was frequent. The stools were white and curdy; for several days before death they contained mucus and blood. The urine was greenish-yellow, acid, and without albumin. Petechiæ appeared over the entire body, even the scalp. Hands, feet and legs became oedematous. A blood examination showed 85 per cent. of hemoglobin; 19,437 white cells and 4,598,076 red cells. The differential leucocyte count gave 26 per cent. of small mononuclears, 5 per cent. of large mononuclears, 1 per cent. of transitionals, and 68 per cent. of polymorphonuclear neutrophiles. No eosinophiles and no nucleated red cells were seen. Four days before death 2½ c. cm. of blood were taken from the left external jugular vein and glycerin-agar plate cultures made. No growth appeared. Death occurred at the age of three months.

The autopsy was performed ten hours after death. The body was emaciated; the skin was deeply icteric and the seat of very generally distributed petechiæ, which were also found beneath the pleura, pericardium, endocardium and kidney capsules. All the organs were bile-stained. The liver was enlarged, weighing 185 grms.; it was hard, coarsely granular and in color a deep olive green. The gall bladder was small, atrophic, empty, and imperforate at its neck. The cystic duct was merely a fibrous cord, and the common duct was in the same

condition; the hepatic duct was also impervious. The intestinal contents were not yellow, but looked like grumous barley water, evidently due to the admixture of blood from small hemorrhages throughout the stomach and colon. There was some atelectasis in the lungs. The heart valves were normal, and the foramen ovale was open.

Microscopic examination of the liver showed a marked increase in the interlobular connective tissue, which was chiefly of the older, fibrous type; but in places it was markedly cellular. Thus the fibrosis was progressive. The small amount of interlobular connective tissue was of the cellular variety. The liver cells were granular for the most part; some were fatty. The interlobular bile capillaries were distended with greenish brown pigment granules, making an excellent natural injection. Pigment granules were lying in many of the liver cells also. The smallest interlobular bile ducts were also dilated, but the larger ones were mostly empty and had a normal epithelial lining; many were apparently impervious. There were no newly formed bile ducts. The blood vessels were intensely congested, their walls being normal.

The condition in this case was a congenital defect in the common, cystic and hepatic ducts whereby these were reduced to impervious cords, causing a complete obstruction to the bile outflow and consequent connective tissue proliferation.

That there was no developmental error in the structure of the liver the autopsy proved; and as pressure from a calculus, enlarged glands or new growth could be definitely excluded, the only possible cause for the obstruction must have been an inflammatory condition occurring before birth. As the etiological factor in such an inflammation Rolleston (*Brit. Med. Journ.*, 1901, Vol. I.) assumes that poisons may be conveyed from the mother to the liver of the fetus, and there set up a mixed cirrhosis and cholangitis. The latter, by descending to the large, extra-hepatic ducts, causes obliteration of their lumen. Of the nature of the poison we have no definite knowledge. That syphilis is not frequent in these cases has been shown by Thomsen (*Allbutt's System of Medicine*, Vol. V.,) who found that in 23 cases which lived to be three months old or more, symptoms of congenital syphilis were noticed in two only, and that the ordinary lesions of congenital syphilis have scarcely ever been found in patients dying of this form of cirrhosis. That it is pos-

sible for the syphilitic taint to promote the extension of this condition, Thomsen believes. The clinical and microscopical pictures are certainly different from those of the syphilitic hepatic lesions usually encountered in infancy.

Rolleston collected 59 cases of congenital obliteration of the bile ducts with cirrhosis, and to these must be added one reported by Parker (*The Lancet*, Vol. II. 1901.)

The symptoms were: marked jaundice, emaciation, oedema of the extremities, ascites and petechial hemorrhages into the skin and gastro-intestinal mucous membrane. Death usually occurred before the age of four months, and invariably before the child was nine months old.

Idiot and Imbecile Children.—The causes of idiocy and imbecility are many and varied, according to Robinovitch (*Journal of Mental Pathology*). Subtle causes, such as maternal impressions during pregnancy, must not be accepted without searching for more substantial underlying causes. Hereditary degeneracy, psychoses, and psychoneuroses of the parents are some of the causes. Acute infectious and contagious diseases of the mother during pregnancy are causes, but additional search must always be made for underlying causes other than these. Syphilis is a cause. Autoinfection, myxedema, is a cause. If the acute contagious and infectious diseases during childhood leave the child an idiot or an imbecile, that child's heredity must be well scrutinized, as the latter is most certainly the underlying cause. Alcoholism of the parents is the major cause responsible for the birth of idiot and imbecile children, according to the study of the cases cited. Alcoholism of the parents not only causes idiocy and imbecility of the offspring, but also acts as a strong factor in reducing the birth rate and increasing the death rate. Children of alcoholic parents, if not idiots or imbeciles, are apt to be invalid in many other ways. Children of alcoholic parents frequently die in early infancy of meningitis.—*Monthly Cyclopedia*.

Clinical Memorandum.

REPORT OF A CASE OF TETANY.*

BY ALEXANDER MC ALISTER,

Camden, N. J.

The report of a case of tetany, which I have been invited to call to your attention, is the first case of the kind I have ever seen or treated in my practice of seventeen years.

I. J., female, age five years, born in New Jersey; family history good, never had any sickness; during August she complained at intervals of sick stomach. About September 1st, she began to lose flesh, looked pale, and lost appetite; bowels were regular. The latter part of September her mother noticed that her gait was unsteady, muscles in her legs and back were rigid at times. This condition of muscles was present only when she attempted to walk, and only occurred very occasionally.

October 11th the child was brought to my office to be vaccinated. The mother asked me to give the child a tonic as she was losing flesh and made no mention of the above symptoms at this time. The vaccination was successful; the arm was sore about five weeks. The week following the vaccination the child would awaken during the night screaming; when eating she complained of stiffness in the jaws. This rigidity increased until it would only admit the passage of a small glass tube between the teeth; the jaws were not, at any time, during her illness tightly closed.

The latter part of October she was again brought to my office, when I for the first time suspected I had a case of tetanus, but upon careful investigation, I changed my mind regarding the diagnosis. I visited the child regularly after this time. I did not order her kept in bed until about November 10th. Previous to this date the child had complained of feeling cold pains in limbs, vertigo, and was very irritable; there was rigidity at times of muscles in legs, arms, back, throat and face, all of

* Read before the Philadelphia Pediatric Society, January 14, 1902.

which became more marked as the disease progressed. I only saw her once during a spasm. The hands and elbows were flexed, the upper arm was pressed against the chest; in the lower extremities the toes were slightly flexed; the feet were in the position of talipes equinus; the muscles of face and trunk were flexed; cyanosis was present. The muscles felt hard and were sensitive to pressure; there was no loss of consciousness; eyes glassy, lids partly closed; pulse 120, temperature 100 2-5° F. The attack lasted about five minutes and subsided gradually with slight sweating. Complained after attack of some pain and stiffness. She would sometimes have as many as seven of these spasms in twenty-four hours. They frequently occurred at night, when she would awaken screaming. If she attempted to get in an erect position she would have a spasm.

November 18th.—She was unconscious during a spasm; this occurred only once. Exaggerated patellar reflex. Complained of pain over epigastrium. The rigidity in muscles of legs was such that she could not walk without support. Hand grasp weak; in attempting to shake hands the fingers would become stiff. After the child had been sick for four weeks, the paroxysms grew less frequent and violent; there was also a gradual diminution in the hypersensitiveness of the nerves, and in the reaction to Troussseau's test. The child was apparently well in about six weeks.

TREATMENT.—Quinin, arsenic and bromids; tepid baths, cold sponging and massage; gentle friction.

November 19th.—Dr. Edwin E. Graham, of Philadelphia, was called in consultation, and confirmed the diagnosis of tetany.

Two Cases of Fatal Lysol Poisoning, with Considerations on the Action of Lysol.—Burgl states that (*Münch. Med. Woch.*, Bd. xlvi., No. 39), the first case, a boy of five days, received a coffee-spoonful of pure lysol by mistake. Death occurred in fourteen and one-half hours. In the second case, a girl, eight years and four months old, received, by mistake, a teaspoonful of pure lysol. The physician who was called washed out the stomach, but death occurred. He was afterwards accused by the parents of having killed the child by passing the stomach tube, and was brought before the court, but was exonerated. Lysol is composed of one part coal-tar cresol and one part of potassium oleate soap. It is a powerful antiseptic. There are 18 cases of poisoning on record, with 7 recoveries. Of these 7, 5 had been saved by lavage.—*American Medicine*.

ARCHIVES OF PEDIATRICS.

MARCH, 1902.

EDITED BY

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

GANGRENE OF THE LUNG.

Gangrene of the lung is met with infrequently, and from the description of Rilliet and Barthez in 1843 to the present there has been no absolute symptom, nor set of symptoms, that discloses the destructive character of the disease or separates its features from many that are common to septic pneumonia, empyema and bronchiectasis, with any one of which the gangrenous process may be associated. When gangrene of the lung is observed in the course of an epidemic, such as measles, the symptomatology is so complex that the gangrenous invasion of the lung is masked and its course is unlike that which follows the presence of a foreign body in a bronchus.

The physical signs are not always distinctive of consolidation, and when a pneumonic area is present a focus of gangrene

which has undergone softening will produce sounds similar to those of a tubercular process. Infarcts near the site of destructive necrosis may cause sufficient consolidation to disguise the character of the gangrenous softening. Pneumonia and gangrene are usually associated and the separation of the physical signs due to the latter process is not always easy.

As the gangrene is a destruction of lung tissue some help may be gained by an inspection of the sputa. Thus these are seen as blood streaked, rusty, greenish and frothy in children whose ages would indicate that they could not expectorate except by violent effort or after a great accumulation of material in the upper air passages. Unfortunately, however, the expectoration is frequently wanting, as are the gangrenous odor and sweetish breath, which are described as distinctive when detected in older patients.

The septic picture is a dark one and perhaps it is best stated that the constitutional symptoms are out of all proportion to the physical signs. Blood examinations have not been satisfactorily recorded, so that we have nothing to help us differentiate the disease except a high leucocytosis. It is to be supposed that the results of examinations will show blood counts similar to those of gangrene in other parts of the body.

The bacteriology is not fully established but Seitz found that any one of the pyogenic group of bacteria may be present in the gangrenous areas.

Where a diagnosis can be made the success of treatment is not in medication but from surgical interference. Over sixty per cent. of a series of cases recorded by Herczel were saved by radical measures.

The Section on Pediatrics of the New York Academy of Medicine will meet March 13, 1902. Papers on the joint diseases of infancy and childhood will be read by Drs. T. Halsted Myers and Henry Ling Taylor.

Bibliography.

Manual of the Diseases of Children. By John Madison Taylor, A.M., M.D., Professor of Diseases of Children, Philadelphia Polyclinic; Assistant Physician to the Children's Hospital and to the Orthopedic Hospital, etc., and William H. Wells, M.D., Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc. Second Edition, Thoroughly Revised and Enlarged. Illustrated. Pp. xvi.-859. Philadelphia: P. Blakiston's Son & Co. 1901. Price \$4.50.

When the first edition of this work was published, the authors stated that the book was not intended to be a treatise on the maladies of childhood; the aim was rather to present in a clear and concise manner the chief points in description, differentiation and treatment. As a manual, then, it must be considered, although the new edition contains a few articles written wholly, or partially, by specialists. The second edition has been largely rewritten and a few more special articles added, aiming to bring out a succinct presentation of the whole subject of diseases of children. Acting upon this idea, short accounts are given of the various diseases of the skin, of the ear and of various deformities.

The articles on infant feeding have been rewritten, owing to the great advance of our knowledge, especially of the home modifications of cow's milk. The object of this chapter is evidently to present to the general practitioner some conception of the various methods employed in infant feeding. We confess to some feeling of pity, however, for the physician thus seeking knowledge and not posted on the subject, who depends entirely upon the information conveyed in the chapter. Modern percentage feeding is confusing enough to the average practitioner, and when an effort is made to quote various authorities and explain divers and sometimes antagonistic methods, the result is apt to be confusing. After stating that there are several methods by which milk can be modified at home, none of them being very complex, the authors proceed to give those which they consider the simplest and best adapted to ordinary use. These methods call for creams of various percentages of butter fat, sugar solutions (likewise of various percentages) and as the

authors differ in their percentages no great help is given to the uninformed. As a first formula for a child three months old, the authors have good results from a mixture of fat, 4 per cent.; sugar, 6 per cent.; proteid, 1 per cent.; lime-water, 5 per cent. In preparing this mixture a cream containing 16 per cent. butter fat is called for. An accurate method of procuring this cream is, however, not mentioned. They also quote the following from another author, much used for a basic formula for a child two to three months old which must be fed artificially: Fat, 2 per cent.; sugar, 5 per cent.; proteid, 75-100 per cent.; lime-water, 5 per cent. In making this mixture so much cream is called for without any statement as to the percentage of butter fat it should contain. We believe the physicians of the country will never become scientific modifiers of cow's milk by such instruction. A very good account of proprietary foods is given, with analyses, taken from Bulletin No. 10, Department of Agriculture. In glancing through the volume we are impressed with the excellence of the section on the nervous system. The conception of the neuron is explained in as simple and satisfactory a manner as possible. Much gain is thus accomplished for the reader who may not be posted exactly in some of the more modern terms. The physiology and significance of the reflexes are also fully explained in connection with their importance in early life. An interesting account is given of automatic movements, including head-nodding and shaking, that are very puzzling to the observer who has not some conception of their mechanism. There is some inequality of space given to various subjects in this section, however, as myxedema, one of the most interesting diseases, is dismissed with little over half a page. A very complete description is given of the specific infectious diseases from tuberculosis to glandular fever. A fair estimate of the volume as a whole would be that it is interesting and well written, but principally a compilation.

Essentials of Obstetrics. By Charles Jewett, A.M., M.D., Sc. D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, and Obstetrician and Gynecologist to the Hospital, etc. New (2d) edition, revised and enlarged. Pp. 376, with 80 engravings and 5 colored plates. \$2.25 net. Philadelphia and New York: Lea Brothers & Company. 1901.

This "Essential" is not without interest to students and

practitioners who are in charge of obstetrical cases where the infant has to be fed artificially. In the limit of a few pages full directions are given, so that milk may be modified at home or ordered from the milk laboratory. The rules for feeding are carefully considered and, allowing for the scope of the book, are complete enough for practical purposes. The treatment of the eyes and the umbilicus and other necessary details are not overlooked. Such a book is a welcome addition to the long list of handy volumes. The author is to be congratulated that he knows how to put so much information in so compact a form.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. iv. December, 1901. Pp. vi.-409. Illustrated. Philadelphia and New York: Lea Brothers & Company. \$10.00 per year.

There is no particular part of this volume devoted to pediatrics, but in many of the chapters there are important items bearing on this branch of medicine. In the chapter on diseases of the digestive tract there are a number of these paragraphs, some of which could be extended by reference to pediatric literature without lessening the value of future abstracts on diseases of children. Bloodgood gives an excellent compilation of the literature of anesthesia. He concludes that spinal anesthesia is still in an experimental stage.

It is hardly necessary to add that this number of *Progressive Medicine* maintains its high standard.

Phosphorus in Rachitis.—H. Leo states (*Therapie des Gegenwart*, December, 1901) that no conclusive proof has yet been offered of a specific action of phosphorus in rachitis. On the other hand, he says, cases have been published showing an actually deleterious influence. *The Journal of the American Medical Association* has mentioned Nebelthau's experience, the death of a well-developed child of two years after taking only 3 mg. of phosphorus in the course of sixty hours. Leo relies principally on dietetic and hygienic measures, especially the systematic administration of olive oil. If no improvement follows this treatment, he gives phosphorus in small doses, not over one teaspoonful of a .001 per cent. solution or ten drops of a .01 per cent.—*Journal of the American Medical Association*.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—
LONDON.

Meeting of January 19, 1902, at the Evelina Hospital for Sick Children.

A. H. TUBBY, M.S., CHAIRMAN.

DR. GEORGE CARPENTER showed a

CASE OF PAROXYSMAL HEMOGLOBINURIA

in a female child, aged three years. An infant sister had been treated at the hospital for congenital syphilis, but the patient showed no signs of that disorder.

DR. CHARLES MACALLISTER suggested that absorption from the nasal discharge from which the child suffered might be responsible for the condition.

DR. G. A. SUTHERLAND called attention to the presence of oxalates in the urine in such cases.

DR. GUTHRIE spoke of two sisters who developed hemoglobinuria and who were undoubtedly syphilitic.

DR. GEORGE CARPENTER in reply remarked on experiments showing the immediate distinctive action of cold on the red blood corpuscles of such cases when topically applied.

DR. GEORGE CARPENTER read notes of a

CASE OF SUPER-RENAL SARCOMA

in a boy aged two and a half years, the organs from which were demonstrated by Dr. Nabarro, who had conducted the autopsy. The right kidney was invaded secondarily by the new growth and the left had become hydronephrotic from pressure on its ureter. The mesenteric and pelvic lymph nodes were secondarily invaded and subsequently some lymph nodes under the sterno-mastoid. The case in its clinical aspect was not unlike tuberculous peritonitis, but the injection of tuberculin gave negative results and confirmed the original opinion.

THE CHAIRMAN and MR. CLEMENT LUCAS drew attention to the hopelessness of surgical interference in the large majority of cases of renal sarcoma.

DR. CAUTLEY looked upon it as a case of extra renal sarcoma, with secondary renal attachment and inquired as to secondary deposits in the skin.

DR. GEORGE CARPENTER in reply said there were no secondary cutaneous deposits. He did not consider it a case for operation and that opinion was borne out by the post-mortem examination.

MR. CLEMENT LUCAS showed a

CASE OF TRAUMATIC CHOREA AND MUSCULO-SPIRAL PARALYSIS, complicating a fracture of the upper third of the humerus in a girl aged eleven years. The chorea developed within half an hour of the injury and was not associated with heart disease or a rheumatic history. The musculo-spiral paralysis was believed to be caused by the callus resulting from movement during repair and it was proposed to cut down on the seat of fracture and relieve the nerve from pressure. Another interesting point in the case was an abnormal growth of hair on the lower third of the arm and dorsal aspect of the forearm corresponding to the skin supplied by the injured nerve.

DR. FREDERICK TAYLOR asked whether a recent attack of any infectious disorder could be negatived, and whether it was certain there were no choreic movements prior to the accident. He observed as to the obscurity surrounding the relationship of chorea to the emotions and shock. How did the traumatism operate? Through the central nervous system, the nerve of the limb, or by the production of shock?

MR. PERNET, MR. JAFFREY, and DR. GEORGE CARPENTER joined in the discussion and MR. CLEMENT LUCAS replied.

THE CHAIRMAN showed several

CASES OF PARALYTIC TALIPES CALCANEO-VALGUS, EQUINO-VALGUS AND EQUINO-VARUS,

which had been treated by muscle-grafting. In some of the cases, especially those of calcaneo-valgus, the results were good, also in two of the cases of equino-varus, but the equino-valgus cases were not so striking, although the improvement was very considerable. In his remarks on operative procedures alluded to he said that paralytic cases might be divided for purposes of treatment into three classes: (1) those in which a single muscle or a single group of muscles were affected; these were capable of satisfactory treatment by tenotomy; (2) those in which at

least two groups of muscles were paralyzed; these were fit subjects for muscle-grafting; (3) those severe cases in which all the muscles around a limb were useless; for these arthrodesis was recommended. After speaking of the limitations of muscle-grafting and indicating its scope, and pointing out that as there was a diminution of power applicable to a given joint the best results could not give a perfect result, he yet thought that muscle-grafting was a scientific and practical procedure, for it distributed what voluntary power was left around an articulation and so it became well-balanced, although too often weak. The indications and methods of operating in arthrodesis were then alluded to, and 3 cases were shown. A case of infantile spastic paralysis affecting the upper extremity was brought forward in which considerable improvement had been obtained by converting the pronator radii teres into a supinator, and by section of the flexor carpi radialis the patient now has the power of voluntary, but partial supination of the forearm. The method adopted is fully described in the *British Medical Journal* of September 7, 1901, and from an experience of 6 cases he thought the operation promised well.

MR. CLEMENT LUCAS and DR. SANSOM spoke of the value of the Chairman's suggestions.

MR. WALTER EDMUNDS and DR. GEORGE CARPENTER showed a
CASE OF MYOSITIS OSSIFICANS

in a female aged four years, one of a family of eight. The disorder had been noticed six months and recently rapidly advanced. The affected muscles were in part infiltrated and in others displayed bony plates. There was fusion of two phalanges of the great toes, a condition which had been recognized as occurring in these cases. Microscopical examination of a portion of an infiltrated muscle showed fibro-nuclear tissue alone.

DR. MILLIGAN read notes on a case of

CONTRACTED GRANULAR KIDNEY

in a boy aged seven years. The chief symptoms were pallor, wasting, headache and polyuria. The heart was slightly hypertrophied, the skin bronzed, and the urine of low specific gravity and albuminous. Later he developed albuminuric retinitis and epistaxis and cutaneous hemorrhages occurred. Four weeks before death the heart began to fail, the extremities became

dropsical, giving place to general anasarca with anuria and the child died comatose. The kidneys macroscopically and microscopically were typical of the condition.

DR. GEORGE CARPENTER inquired as to a history of syphilis in the case and said that he had not detected albuminuric retinitis in cases of contracted granular kidney in children; but he had seen that condition in a child of eight years who suffered from a large white kidney, which was verified post-mortem.

DR. SANSOM regarded it as one of typical interstitial nephritis, but thought that acute parenchymatous nephritis had been grafted on it.

MR. SYDNEY STEPHENSON thought it quite possible that retinitis might be as common in interstitial nephritis in children as it was relatively in that disorder in adults. His own experience had furnished him with two such instances, the latter of them two days since.

MR. SYDNEY STEPHENSON read for DR. LEWIS MARSHALL notes on a case of

THYROID DISLOCATION OF THE HIP

in a child aged nine years, of four months' duration, confirmed by X-rays. There were two points worthy of note; a previous synovitis of the hip joint had existed, and reduction was quite easily affected by manipulation.

Early Diagnosis of Scarlatina.—M. H. Gillet *Jour. des Practiciens*, October 5, 1901) says that, an early diagnosis permits of an early prophylaxis. A rapid loss of weight during the first five days is one of the early symptoms, as is a great increase in the neutrophilic polynuclear leucocytes, which, on the appearance of the eruption becomes transformed into a hypoleucocytosis. A violaceous, erythematous stomatitis with considerable swelling is also noted early in the disease, or there may be small, irregular patches, of a whitish-bluish color, upon the mucous membranes of the mouth, as early as three days before the eruption appears. The sore throat of scarlet fever is described and a pharyngeal adenitis is spoken of by the author before the cutaneous symptoms appear. Diarrhea and general gastro-intestinal disturbances are frequent, and there may sometimes be a rash which anticipates the scarlatinal eruption.—*The New York Medical Journal*, Vol. Ixxiv., No. 23.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, Tuesday, January 14, 1902.

DR. THOMPSON S. WESTCOTT, PRESIDENT.

DR. JAMES H. MCKEE exhibited a

CASE OF SYPHILITIC DACTYLITIS AND ONE OF ASTHMA,
apparently due to enlargement of the mediastinal lymph nodes.
No discussion.

DR. ALEXANDER MCALISTER reported a case regarded as
TETANY.

(See page 192.)

DR. GRAHAM, discussing Dr. McAlister's paper, said that the main point was to determine whether the case was one of tetanus or one of tetany; for a number of cases of tetanus following vaccination had appeared at about the time that this child became ill. He had entirely agreed with Dr. McAlister in the diagnosis of tetany. Among the circumstances which supported that diagnosis, was the history. The child had suffered decidedly from rigidity of the leg muscles some weeks before the vaccination, and decided spasm had not developed until fifteen days or more after the vaccination. The latter point is one of especial importance, because the symptoms of tetanus almost always appear earlier than the fourteenth day, and frequently, of course, still earlier. In this case there was no attempt made to use tetanus antitoxin, because, in the first place, the case was not thought to be tetanus, and, in the second place, the case was so chronic, and the child was seen so long after the opportunity for infection, that the time at which anti-toxin is especially indicated had passed.

It is exceedingly difficult to state just what tetany is. Certain things, however, are known about its etiology. It occurs in children that have gastrointestinal disturbances, in those that exhibit malnutrition, and not uncommonly in those that have malaria or that live in malarious regions. In this child all these etiologic factors were found. Hysteria was considered in the case; but the child had no indications of hysteria, either before, during, or after the attacks.

DR. J. P. CROZER GRIFFITH said that the diagnosis of tetany in the case reported seemed to him somewhat doubtful; although, of course, those who had seen the patient were naturally more capable of judging than those who had not had this advantage. In any event, the case was decidedly remarkable and interesting.

As to the length of time after vaccination being too great to allow of the diagnosis of tetanus, this clearly could not be maintained with positiveness, inasmuch as it was possible for the child to have become infected with the tetanic poison at any time subsequent to the day of vaccination. The description of the case did not sound exactly like that of tetanus, nor did it entirely correspond with that of tetany. There was one symptom mentioned which was certainly very unusual in the latter disease, viz.: trismus. A few years ago he had reviewed the literature of the cases reported as tetany which had occurred in America, and had found somewhat over 70. There were not, so far as he could recollect, any undoubted cases in which trismus was present. This condition had, however, been reported elsewhere in tetany, in rare instances; and its presence in Dr. McAlister's patient was not, of course, sufficient to exclude the diagnosis, although it threw light elements of doubt upon it.

There was also another fact worthy of attention; namely, that while there are two forms of tetany—the continuous and the intermittent—which shade into each other, to a certain extent, and may even be present in the same case, the intermittent form is very much less frequent, and the continuous type is unusual in the adult. The younger the child, the more liable is the tetany to assume the continuous type. The child reported to-night appeared to have had chiefly an intermittent spasm; consequently, if tetany, it represented the more unusual form of the disease.

DR. GRAHAM stated that in looking over Dr. Griffith's article he had found 1 or 2 cases in which trismus was noted as present.

DR. GRIFFITH, in reply to Dr. Graham, stated that although he had abstracted in his article all the cases which were reported as tetany, he by no means believed that all of them were undoubtedly such. The cases in his article in which trismus was mentioned seemed to him to have distinct elements of doubt attaching to the diagnosis.

DR. G. A. SCOTT showed a case of

CONGENITAL HEART DISEASE.

The boy, aged nine, is of German parentage. The father and mother are living and healthy, and there are several healthy brothers and sisters.

The child has been cyanosed since birth. He has had no serious illness except a pneumonia, for which he was treated in the Children's Hospital.

At present he is underized; cyanosis is constant, being especially marked in the lips and finger-tips, although all the veins are purple and distended. The head is not enlarged. The cranium feels unusually heavy, with the sutures prominent. The fingers and toes present an unusual degree of clubbing; this is not due to any bony enlargement, as shown by the X-ray examination. By percussion, the heart outline extends beyond the right border of the sternum; this is corroborated by fluoroscopic examination of the chest. The visible and palpable impulse is in the fourth interspace, midclavicular line. No thrill is felt over any part of the heart; at no area is a murmur heard. The pulmonic second sound is accentuated; the other sounds are clear and distinct. The liver is slightly enlarged. There is no edema of the extremities. His blood count is interesting; the erythrocytes number 9,400,000; the leucocytes, 8,200; the hemoglobin is 117 per cent. The urine is normal, chemically and microscopically.

The cardiac lesion present must be accounted for theoretically, and not by the physical signs. It has been repeatedly shown that admixture of venous and arterial blood will not produce cyanosis. In this case it is probable that there is an anomalous origin of the aorta—such as both vessels coming from the right ventricle; or there may be but one common ventricle, with two auricles.

The lad, too, has, in the last seven months, become totally blind. Ophthalmoscopic examination shows only enormously distended veins; no hemorrhages. His mental condition has also rapidly deteriorated. These symptoms might be due to a hydrocephalus.

DR. E. E. GRAHAM reported

A CASE OF CONGENITAL HEART DISEASE

and exhibited the specimens. (See page 101.)

DR. J. P. CROZER GRIFFITH, in discussing Dr. Scott's case, stated that he remembered the patient very well, as he had used him repeatedly for ward-class instruction at the Children's Hospital. Although unable to say positively that there had not at any time been a murmur audible, he could not recall any. The case had been demonstrated as one of congenital cardiac disease without murmur. The diagnosis made at that time agreed closely with the one which Dr. Scott had advanced, namely, that there was some congenital anomaly in the origin of the great vessels, the exact nature of which could not be demonstrated, which allowed the arterial blood to enter—in part, at least—the pulmonary artery, thus greatly increasing the tension therein, and accounting for the accentuated second sound. The existence of a pulmonary stenosis, with the entrance of blood into the pulmonary artery through a patent ductus arteriosus, seemed entirely improbable, for the reason, among others, that no murmur was present. The accentuation of the pulmonary second sound, which would be accounted for by such a condition, must, therefore, have been produced in some other way; and the theory advanced seemed to be the most probable one.

DR. J. H. MCKEE said that, while he was a resident physician at Blockley, he had seen a case somewhat similar from a pathologic standpoint, in an infant six months old that died with signs of pneumonia of the apex. The heart exhibited absence of the septum ventriculorum (*cor triloculare*). The child had been repeatedly examined by a number of physicians of experience, and there had been no thought of cardiac disease. There was neither a murmur nor cyanosis; and, excepting for the signs of pneumonia during the three days preceding death, the child had appeared as healthy as most of the infants in the foundling ward.

DR. GRAHAM said that he believed that if the circumstances in his case had been more favorable, it might have been possible to detect a murmur; but the child was extremely ill when he first saw it, and died within eighteen hours thereafter. A physical examination under these circumstances was, of course, thoroughly unsatisfactory, and did not demonstrate that a murmur had previously been entirely absent.

DR. SCOTT, in closing, drew attention to the fact that if the aorta arises chiefly from the right ventricle, the left ventricle is

likely to atrophy more or less completely. It is not improbable that, in this case, there is more or less complete atrophy of the left ventricle, or that there is a single large ventricle, due to the absence of the septum. It is an interesting fact that quite a number of these cases have shown quite a marked prolongation of life. He knew of instances in which life had been prolonged to the sixteenth year, or even beyond, one such case having been reported by Dr. Griffith, of England; his patient died of pulmonary tuberculosis. The condition of the blood in these cases is also interesting. The count is always found high, that of the reds having been found over 9,000,000. This child has 9,400,000 red, and from 3,000 to 4,000 white corpuscles, and 117 per cent. of hemoglobin. The latter has reached even to 165 per cent. (Rokitansky's case). An interesting point in connection with the latter case is that this child exhibits a very marked degree of arteriosclerosis. The radial artery can be distinctly felt, and the blood pressure is unquestionably decidedly high.

Navel Infection of the Newborn.—This subject is of interest on account of its somewhat frequent occurrence and the varied bacteriological conditions which underlie it. M. Wassermann (*Virchow's Archiv.*, B. 165, H. 2) reports the study of 11 cases occurring in the Charity Clinic at München. All of the cases were fatal. On autopsy all showed the umbilical arteries full of thrombi and pus throughout their entire extent. In 7 there was present a pneumonia with hemorrhagic fibrinous exudation, accompanied by necrosis and abscess formation. Four were submitted to bacteriological examination. In all of these cover-slip preparations of the pus and sections of the lungs showed a bacillus whose morphological appearances were identical with those of the bacillus pyocyanus. Its cultural and staining characteristics also corresponded with those of that organism. It was pathogenic for rabbits on inoculation, and at death was found in their heart's blood. It is evident that this organism was the producer of the navel infection. This work increases the evidence in favor of the opinion that under certain conditions the bacillus pyocyanus is a pathogenic organism for man.—*Medical News.*

THE PHILADELPHIA PEDIATRIC SOCIETY.

REPORT OF THE MILK COMMISSION.

Read before the Society, January 14, 1902.

The question of the production of a pure milk in the City of Philadelphia was first considered by this Society during the latter part of the year 1895. In December of that year a Committee was appointed to consider the advisability of establishing a Milk Commission. In January, 1899, this Committee made a favorable report to the Society, and at the same meeting a Commission was appointed to be known as the Milk Commission of the Philadelphia Pediatric Society. This Commission was authorized to make a careful study of the milk question and to consider the methods used for the production of a pure milk in the various cities of the country. Very little information was obtainable from the latter source and the Commission was compelled, for the most part, to originate a standard of its own. This was accomplished as the result of earnest, persistent, conscientious labor on the part of the members of the Commission, after consultation with bacteriologists, chemists, veterinarians and some of the higher class dairymen. In January, 1900, the Commission submitted to the Society the following report:

1. There shall be a Milk Commission of the Philadelphia Pediatric Society, whose duty it shall be to examine milk submitted to them by dairymen and certify as to the result of such examination.
2. The actions of the Commission shall be reported from time to time to the Society, and shall be subject to its approval.
3. The Commission shall consist of four members besides the President of the Society, who shall be a member *ex-officio*. The members shall be appointed yearly by the President as soon as possible after his election. The Commission shall elect a Chairman and a Secretary from their number.
4. No statement for publication or information to any dairyman shall be given by or in the name of any individual member, but only after consideration by the Commission and in the name of "The Milk Commission of the Philadelphia Pediatric Society."
5. The Commission will hold itself in readiness to examine milk from dairies desiring this examination, and to certify to the

good quality of milk which comes up to the standards fixed by it. It is understood that only the milk of dairies, and not that of milkmen who merely serve milk, bought by them, will be examined by the Commission.

6. The method of examination and certification to which the dairyman or his agent shall agree to submit shall be as follows:

7. The Commission shall select a bacteriologist, a chemist, and a veterinary inspector. The bacteriologist shall procure a specimen of milk from the dairy, or, preferably, from delivery wagons, at intervals to be arranged by the Commission and the dairy, but in no case at a longer interval than one month. The exact time of the procuring shall be without previous notice to the dairy. He shall test this milk for the number and nature of the bacteria present in it, to the extent which the needs of safe milk demand. He shall also make a microscopic examination of the milk for pus-cells. Milk free from pus and injurious germs and having not more than 10,000 germs of any kind or kinds to the cubic centimeter, shall be considered to be up to the required standard of purity.

8. The chemist shall, in similar manner, procure and examine the milk for the percentages of proteids, fat, sugar, mineral matter and water present. He shall also test its chemical reaction and specific gravity, and shall examine it for the presence of foreign or other matters, or of chemicals added as preservatives. Standard milk shall range from 1.029 to 1.034 specific gravity, be neutral or very faintly acid in reaction, contain not less than from 3.5 per cent. to 4.5 per cent. proteid, and from 4 per cent. to 5 per cent. sugar, and not less than 3.5 per cent. to 4.5 per cent. fat, and shall be free from all contaminating matter and from all addition of chemical substances or coloring matters. Richness of cream in fat shall be specified and shall vary not more than 1 per cent. above or below the figure named in selling. Neither milk nor cream shall have been subjected to heat before the examination has been made, nor at any time unless so announced to the consumer.

9. The veterinary inspector shall, at intervals equal to those of the bacteriologist and chemist, and without previous warning to the dairy, inspect the cleanliness of the dairy in general, the care and cleanliness observed in milking, the care of the various utensils employed, the nature and quality of the food used, and

all other matters of a hygienic nature bearing upon the health of the cows and the cleanliness of the milk, including also, as far as possible, the inquiry into the health of the employees on their farms. He shall also see that the cows are free from tuberculosis or other disease.

10. The charges made by the experts shall be—for the veterinarian \$10.00, and \$5.00 for each of the others for each examination; this amount to be paid by the dairy at the time of the examination and without regard to whether the report is favorable or unfavorable. The experts shall make their examinations when, and only when, notified to do so by the Commission. Any dairy, the milk of which shall be found by the examiners to be up to the standard of the Commission, shall receive a certificate from the Commission which shall read as follows:

MILK COMMISSION OF THE PHILADELPHIA PEDIATRIC SOCIETY.

Date.

The Veterinary Inspector of the Commission has examined the dairy of Mr. ——, and reports it to be well kept and clean, and the cows to be in a healthy condition.

The Bacteriologist reports that the milk does not contain germs beyond the limits of the standard of the Commission.

The Chemist reports that the milk is of standard richness, and that he has discovered in it no impurities, coloring matter, chemical preservatives, or harmful substances.

The Commission certifies to these statements of the examiners. It is understood and agreed to by the said Mr. —— that this certificate is not good for more than —— from date, when another examination is to be made.

(Signed by the Commission.)

11. In case an examination shows the milk not up to the standard, the dairy may have a re-examination made within a week or within a short time, at the discretion of the Commission.

12. The Commission for 1900 have selected as Veterinary Inspector, Dr. C. J. Marshall; as Bacteriologist, Dr. M. P. Ravenel; as Chemist, Dr. Henry Leffmann. (These same gentlemen continue to make the examinations for the Commission at the present time.)

13. Milk furnished by the dealers to whom certificates have been issued shall be furnished to consumers in glass bottles her-

metically sealed in a manner satisfactory to the Commission. In addition to the sealing, and as a guarantee to the consumer that the examination has been regularly conducted, there shall be pasted over the mouth of the jar, or handed to the consumer with every jar, according to the discretion of the Commission, a certificate slip which shall read as follows:

PHILADELPHIA PEDIATRIC SOCIETY.

Milk Commission Certificate.

Milk from the dairy of Mr. —— has been recently examined by the experts of the Milk Commission and found to be fully up to the required standards. Another examination is to be made within a month, and, if satisfactory, new labels for the bottles will be issued, dated ——.

NOTICE THE DATES.

(The certificate used at present is worded as the above, printed on small slips and placed between the pasteboard cap and tinfoil cap which covers each bottle.)

This report was approved by the Society and was adopted as the standard of the Commission, and since its adoption it has been changed in but two particulars: 1. The upper limit in fat percentages has been extended from 4.5 to 5, and the protein percentage instead of being determined by the Kjeldahl-Gunning method is now determined approximately.

A standard having been secured, the following communication was sent to the better class milk producers throughout the city:

DEAR SIR:—As will be seen by the accompanying circular, the Philadelphia Pediatric Society (which has for its object the study of diseases of children), has appointed a Committee of its members, whose duty it shall be to take certain measures to facilitate the question of infant feeding. The Society is anxious to provide some method by which physicians can know the strength and purity of the milk and cream used in making up the bottles for babies.

If you desire to have the milk of your dairy so examined and certified, you can do so by applying by mail to the Secretary of the Milk Commission, care of the College of Physicians, Thirteenth and Locust Streets.

If you do not wish to have your milk so examined, the Commission does nothing prejudicial to your interests; but it

is believed that it would be to the advantage of physicians and of the better class of milk producers to have some such method of examination under the supervision of a committee appointed by a society composed of physicians interested in the welfare and treatment of children. In no other way could a certificate be obtained that would be of so much value to all interested.

(Signed) MILK COMMISSION,

PHILADELPHIA PEDIATRIC SOCIETY.

The Walker-Gordon Laboratory Company immediately agreed to the conditions of the Commission and were very shortly followed by F. A. Wills, later by Supplee's Alderney Dairies, and finally by the Thorndale Dairies of Abbott & Co. It required some little time for some of these to perfect the conditions under which they produced their milk sufficiently to enable them to meet the requirements of the Commission, but by earnest effort they were all finally accepted.

No other dairies have placed themselves under the direction of the Commission. Some have applied, but on ascertaining the standard required have not been willing to make the attempt to meet it. The efforts of the dairymen above mentioned have been, on the whole, successful. The work of the experts having in charge the bacteriological and chemical examinations, and the examination of the herds and stables, has been conducted in a manner most satisfactory to the Commission. They have made every effort in their power to further the interests of the Commission by conscientious, faithful labor, at a sacrifice of time and convenience, and in some instances, at a merely nominal charge. It has seemed advisable to the Commission to give in some detail the results of the work for the past year. The reports of the Chemist have been satisfactory for all of the dairies, none of them failing to meet the requirements of the Commission in any particular. The evenness of the Chemist's reports led the Commission to substitute a tri-monthly for the previous monthly examination, in order to reduce the expenses of the producer. This decision was in effect during the months of August, September and October. At the expiration of this time it was decided to abandon the direct estimation of the proteids, which would greatly reduce the Chemist's charges, and to again have a monthly examination made for total solids, fats and specific gravity. The fat percentage (estimated by the

Leffmann-Beam method) for the various dairies throughout the year 1901 was as follows:

	DAIRY A	DAIRY B	DAIRY C.
January,	4.3	4.30	3.95
February,	4.38	4.04	4.04
March.,	4.21	3.65	4.73
April,	4.0	4.12	4.3
May,	4.0	4.2	4.0
June,	4.4	4.4	4.3
July,	4.4	4.1	4.1
November,	4.0	4.4	4.2
December,	4.45	4.2	4.2

It will be seen from the above that the widest variation from 4 per cent. which was found in any of the milks was 7-10 of 1 per cent. In each of the other dairies the widest variation from 4 per cent. was 4-10 of 1 per cent. Therefore, the attempt to produce a milk of approximately 4 per cent. fat content has been very successfully accomplished by all of them.

But one of the dairies has failed temporarily to meet the requirements of the veterinarian, and this failure only ensued as the result of a disastrous fire. Up to that time the condition of the herds and the condition of the stables as to ventilation, heat, floors, troughs, cleanliness, dimensions, etc., were entirely satisfactory.

All of the dairies have had difficulty at some time in the course of the year in producing a milk which would come within the bacteriological limit adopted by the Commission of 10,000 bacteria per c.c. The results of the bacteriological examinations are as follows:

	DAIRY A	DAIRY B	DAIRY C
January,	958	3,541	3,083
February,	5,875	1st 12,666 2d 4,541	2,900
March,	5,983	3,000	1st 22,500 2d 4,580
April,	f. 14,291 s. 3,791	3,233	1,541
May,	f. 13,208 s. 7,333	7,625	7,375
June,	1,125	1st 15,250 2d 11,666 3d 7,041	8,208

July,	3,958	1st 44,250 2d 6,541	1st 147,016 2d 9,585
August,	3,418	1st 12,833 2d 25,750 3d 2,041	1st 22,900 2d 5,791
September,	8,666	5,083	6,041
October,	8,208	2,041	4,458
November,	916	375	7,841
December,	1,600	458	1st 25,833 2d 100,000 3d 49,666 4th 375

It is interesting to note that Dairy A failed to come within the limit of 10,000 in but two examinations, being on one occasion but 4,291 above the limit and on the other but 3,208. And while Dairy B has found it necessary to submit to several re-examinations in the course of the year, it should be noted that only during the month of July did they fail to come within the limit requirement of 30,000 established by the New York Milk Commission, and in that instance the count reached only 44,250. Dairy C has had three counts in the course of the year which were above 30,000, and in two instances, in July and December, have overrun the 100,000 mark. In one of these the unfortunate conditions under which it was necessary, temporarily, to produce the milk rendered it practically impossible to secure a low bacterial content. The Commission believes that it has reason to be very much encouraged in its work. It has met with many obstacles, the chief of which is the education of the lay public to an appreciation of the advantages of a pure milk. Success in this direction has not been as complete as can be desired, but there has been unmistakable evidence during the past year that the subject of a pure milk is meeting with greater consideration and is being more generally discussed among the laity than it has ever been at any previous time in the city of Philadelphia. The little that has been accomplished in this way has been done not alone by the members of the Commission, but in large part by the physicians throughout the city, who, appreciating the value of this work, have done what they could to popularize the products of these various dairies among their patients. A communication calling attention to the existence and setting forth the objects of the Commission, which was sent to every physician in Philadelphia during the past Summer, was

evidently appreciated, since its dissemination was promptly followed by an increased demand for the purer milk.

A striking illustration of the usefulness of an institution of this sort has been observed very recently by the Commission. It was found necessary to withhold the certificates from the milk produced by one of the dairies, owing to its inability to comply with its requirements. During this interval there was brought to the attention of the Commission a number of cases of milk infection among babies taking the milk from this dairy. One of these proved fatal. Had the consumers been influenced by the absence of the certificates to give up, temporarily, the use of this milk these illnesses might have been prevented.

Within the past few months the Commission has been having made some bacteriological examinations of cream obtained by centrifugation from certified milk in order to determine a bacteriological standard for cream. Up to the present time fifteen examinations have been made, and the results have been so interesting and unexpected that it seems well worth while to give them in detail:

No.	DATE.	NO. OF BACTERIA PER C.C.
I.,	12-11-1901	30,250
II.,	12-12-1901	8,250
III.,	12-13-1901	9,500
IV.,	12-14-1901	15,750
V.,	1- 6-1902	7,833
VI.,	1- 7-1902	8,666
VII.,	1- 8-1902	10,416
VIII.,	1-15-1902	6,333
IX.,	1-16-1902	3,833
X.,	1-17-1902	6,666
XI.,	1-18-1902	2,916
XII.,	1-22-1902	8,291
XIII.,	1-24-1902	4,208
XIV.,	1-25-1902	4,791
XV.,	1-27-1902	6,041
		133,744
Average,		8,916

This gives a total in the fifteen examinations of 133,744 bacteria, making an average count of 8,916.

Dr. S. H. Gilliland, who made the examinations, has called our attention to the fact that the samples were received at various times, and were not all made on consecutive days, and that the bottles at times were only partially filled, a fact which

does not favor a low bacterial count. The Commission at the present time is having made bacteriological examinations of gravity cream obtained from the certified milk, and is also making a series of examinations of milk and cream produced on the same day, with the idea of determining whether or not there is a constant relationship existing between the bacterial count of the milk and cream. This work will be fully reported upon when completed.

In closing this report, the Commission desires to express its gratitude to the Society and to those physicians who have interested themselves in this work for their support, and it would respectfully ask continued and greater support for the Commission to be appointed for the year 1902.

(Signed), J. P. CROZER GRIFFITH, *Chairman.*
 FREDERICK A. PACKARD,
 THOMPSON S. WESTCOTT,
 ALFRED HAND, JR.,
 SAMUEL MCC. HAMILL, *Secretary.*

Stone in the Bladder in Children.—Changes in the urine produce stones independently of the patient's age. M. F. Porter (*Annals of Surgery*, December, 1901,) reports a case of one in a female child four years old. The attacks were for a time considered of intestinal origin and later, after careful inquiry and observation, of renal origin. Soon after this stones were passed with the urine. The trouble began when the baby was only six months old; during the next two years she had a great deal of trouble of the same kind and passed in all perhaps a tea-spoonful of stones, ranging in size from that of a millet-seed to that of a large grain of wheat. The attacks ceased and for a while she seemed to be without trouble. When about four years old the patient was seen again and it was learned that for some days while passing urine she had had attacks of pain in a way to suggest stone in the bladder. Under sounding the diagnosis was confirmed. The operation was done two days afterward and the stone removed by supra-pubic cystotomy. The stone weighed when thoroughly dry sixty grains and measured seven-eighths of an inch in width and three-eighths of an inch in thickness. The bladder was immediately sutured with cat-gut and the external wound with silk worm gut and a small wick of gauze left in the lower angle of the wound. This was removed in forty-eight hours. The bladder was drained for five days with the retention catheter and the child was discharged from the hospital on the 12th day of April cured. At the time of operation she was three years, ten months and twenty-five days old.—*Medical News.*

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, January 16, 1902.

GEORGE L. PEABODY, M.D., VICE-PRESIDENT, IN THE CHAIR.

THE FOOD FACTOR A CAUSE OF HEALTH AND DISEASE DURING CHILDHOOD.

DR. JOSEPH E. WINTERS presented a paper with this title. He said that his paper dealt exclusively with the feeding of children after the weaning period, and assumed that the child had been properly fed up to this time. The paper was entirely founded on his own experience, reinforced by physiological and chemical research. His object was to show that children should be given largely of cereals and vegetables, and sparingly of flesh foods. Perhaps a better title for the paper would have been, "The Adaptation of Food to the Necessities of the Growing Organism." Milk contained from seven to fourteen times less iron than other articles of food. The infant entered the world with a store of iron in the liver and elsewhere, and this store was gradually drawn upon until the digestive organs were ready to use other food than milk. Late weaning or the too prolonged use of milk as an exclusive diet for the child, would result in anemia. The chemical composition of the farinaceous foods showed that oatmeal was rich in all the constituents essential for the growth and development of the child at this age, and was especially rich in iron. Of the total nitrogenous matter, 94 per cent. was in the form of proteids, and was, therefore, available for tissue building. It was, however, indigestible unless the cellulose were removed by cooking and straining. In the summer months it was sometimes necessary to use barley. It was seldom wise to begin the use of cereals during the warm months. A teaspoonful of oatmeal jelly might be added at first to every second bottle, and later to every bottle. The fats in the yolk of egg were the same as in butter, and the richness of the yolk in fat, lime salts and in phosphates and iron made it a peculiarly valuable food. The child might be allowed a crust of stale bread twice a day. The effort necessary in chewing such crusts tended to develop the muscles of mastication and facilitated the proper development of the teeth. The child might also be given stale bread broken in the food at the

end of fifteen months. Its diet at this time should consist of whole milk, oatmeal or barley jelly, a soft boiled or a poached egg, two or three times a week, a dry crust of bread twice a day. It was especially in the third or final stage of feeding the child that the physician found himself puzzled. Many looked upon metabolism in the child and in the adult as identical, whereas they were quite diverse. In the child, materials were being stored for future needs. For this reason, certain constituents were required in much larger proportion in the child than in an adult. The bony framework required little or no repair in an adult; hence the earthy salts were unimportant in an adult as compared with the growing child. Carbohydrates were necessary in order to meet the large demand for energy and to protect and shield from oxidation the proteids and fats that they might be stored for future needs. At this age food must be selected with reference to its influence on the development and functions of the digestive organs. In a child, materials must be furnished for the structure and development of new parts. The essential elements of food are: (1) The nitrogenous, *e.g.*, proteids found in animal food, the cereals and certain vegetables; (2) fats; (3) carbohydrates; (4) mineral elements and (5) water. The formation of tissue could not occur without proteid. An animal fed only on non-nitrogenous food, such as fats and carbohydrates, would inevitably starve to death in time. Protoplasm invariably contains nitrogen. Nitrogenous matter is essential to every vital process, and no cell growth can occur without it. Proteids are the material from which muscles are built up, and proteids must be supplied in large amount to the child for the growth and development of the muscular tissue alone, but it is equally necessary for the proper growth of the other structures. The importance of an ample supply of proteids in the diet of the child could hardly be overestimated. The mineral portions of bone were permanent, and required little or no repair in an adult; hence, the great importance of a relatively large supply of these substances in the diet of the child. No formation of cells could occur without the presence of phosphate and other salts. These constituents, however, must not be regarded simply as mineral elements. To be properly assimilated, they must be in their natural condition, *i.e.*, in organic combination. In the breaking up of the organic union between proteids and the mineral salts was to be found

the sole cause of scurvy. Fat commands an immeasurably more exalted place in the diet of the child than in that of the adult. Seventy-seven and a half per cent. of the heat lost from the body is by conduction, evaporation and radiation from the body surface. The radiating surface in the child is over three times greater than in the adult. This relatively large loss of heat made it absolutely indispensable to have a good heat supply, and this was best obtained by an ample supply of fat in the food. The chief seat of the formation of the red blood corpuscles, moreover, was the red marrow of bone. If the food were deficient in fat, the bony structures would develop imperfectly, and rickets and anemia would supervene. An abundance of fat should be the main characteristic of the diet of the young child. Where there was a deficiency of fat the child sooner or later became very subject to bronchitis, and, indeed, to catarrhal affections generally. The time when meat should be given to a child turned on its influence upon metabolism. Meat and meat preparations were characterized by a large amount of nitrogenous matter. Nitrogenous matter markedly increases the metabolism of the body, not only of the nitrogenous, but also of the non-nitrogenous constituents as well. Of the total nitrogenous matter in meat, 15 per cent. was in the form of extractives. Meat extractives have no nutritive value; they are not tissue builders, are not oxidized in the body and are, therefore, useless as sources of heat and energy. They are apt to over-stimulate the nervous system and the metabolic processes. The proteids might be divided into those of animal, and those of vegetable origin. There was no apparent difference between these two classes as to their nutritive value. Vegetable proteid was just as valuable as animal proteid for the construction and repair of the body, and it was free from the crystalline extractive bodies which exist in meat in the proportion of 15 per cent. In a child, combustion was relatively greater than in an adult, first, because the smaller organism having the relatively larger surface carries on a more rapid metabolism per unit of body weight; and secondly, because the metabolism is two and a half to three times greater in a growing body than in the body already formed. Over-stimulation of metabolism by an excess of animal food interferes with the laying on of fat or muscular flesh. Carbohydrates are easily oxidized and their oxidation serves to prevent the proteids and fats from consumption. This

was a matter of the greatest importance to the growing child. Carbohydrates and fats increase the store of proteids. The brain appears to require nitrogen. A sensitive nervous organism should not be stimulated by a nervous food. One of the greatest evils of the meat diet was its tendency to produce a distaste for the vegetable foods of childhood, *i.e.*, the cereals, vegetables and milk. A meat diet, like the use of alcoholic drinks and of coffee and tea and similar stimulants, tended to set up a pernicious habit, and interfere with proper nutrition. An alkaline reacting tissue fluid was essential to the proper functioning of the body cells, and this alkaline reaction was dependent upon the presence of alkaline carbonates. Alkaline bases should be introduced into the system of the growing child in large amount. These mineral constituents could not be introduced into the diet in an assimilable form except in organic combination with the albuminous molecule, and they were only found in this form in certain vegetables and cereals obtained directly from the soil as provided by nature. Vegetable food was probably the chief factor in the production of the coloring matter of the blood. The urine in children was considerably richer in uric acid and ammonia than the urine of adults. The present drift of teaching was to direct the giving of beef and beef juice in considerable quantity to very young children. A pathological consequence of this unphysiological and abnormal feeding was to overstimulate the nervous system and tax the system with incompletely burned excretory products, and to render the urine abnormally acid. There was more so-called rheumatism, anemia, valvular disease of the heart and chorea in children at the present time as a result of the too free use of meat in the diet of the young child than from any other cause. The growing child should have an abundance of milk and cereals. Meat juice should not be given to a healthy child before the age of two years, and then only sparingly. The healthiest children were those who did not receive meat oftener than every second day up to the age of five or six years. There should be sufficient fat and carbohydrates in the food to cover the large demand for heat and energy. It should be remembered that muscular flesh stored during growth was permanent throughout the life of the individual.

DR. LEROY M. YALE said that his own experience had led him to practically the same conclusions, and Dr. Winters had

clearly shown why a meat diet was deleterious to the young child. The evils of such a diet were more pronounced in the children of the well-to-do, not only by virtue of inherited tendencies to gout and rheumatism, but because the slight exercise which such children were compelled to take did not afford the same opportunity for correcting these errors in diet that the children of the poor possessed, for the latter were allowed to expend their energy in romping about the streets.

DR. JOHN DORNING said that it was unfortunately common to find infants of only three months receiving half an ounce to an ounce and a half of beef juice daily. Milk and cereals constitute the proper and natural diet of the young child; meat should not be added until about the third year. He would place oatmeal at the head of the list of cereals for both children and adults. He was in favor of giving children whole wheat bread or coarse bread containing some of the cortex of the granules, for, whole meal contained about 15 per cent. of proteids.

DR. THOMAS S. SOUTHWORTH said that while this paper dealt only with the child after the weaning time, it should not be forgotten that the foundation of good or bad health was often laid before this period had been reached. The transition from an exclusively milk diet to a mixed diet was a critical period, and one which should be carefully supervised by the physician. He could not agree with Dr. Winters in his wholesale condemnation of meat juice, for, though no doubt often given in excessive quantity, it was certainly not only a valuable nutrient but a means of improving the quality of the blood.

DR. W. H. BATES spoke briefly of some clinical observations that he had made regarding the influence of certain dietaries on the progress of certain affections of the eye.

DR. ELMER LEE expressed his belief that only such food as was in itself capable of germination was a safe and suitable food for either the child or the adult. The cereals were perhaps the best as well as the cheapest food, while meat was the most costly and the poorest in nutritive value.

DR. WINTERS, in closing the discussion, said he was sorry that many of the standard text books recommend prepared foods, which were undoubtedly deprived of every particle of nutritive value by the chemical process to which they had been subjected in order to preserve them. The only reason they

were able to pose as foods was because of the milk with which they were mixed. After some study of the different kinds of flour, he had learned to look upon whole wheat flour as a common source of indigestion among children in the best families of this city, and his contention in this respect seemed to receive confirmation by observing time and again the restoration to health of children merely by excluding such flour from the diet. Many years ago his attention had been directed to the baneful influence of meat juice in children in a case of profound anemia, in which by careful exclusion he became convinced that this alone was the cause of the anemia. Acting upon this theory, he had ordered the beef juice discontinued and the girl put back on cereals. Without any medicine the anemia had quickly disappeared. Since then he had repeated this observation hundreds of times. He believed there was no surer way of producing profound anemia in well-to-do children in this city than by giving them freely of beef juice. He would be willing to guarantee that an anemic child, free from organic disease and free from infection, if given cereals and vegetables in proper proportions, would in every instance become rosy and rotund.

The Koplik's Spots in Measles.—Emil Feer says (*Correspondenz-Blatt für Schweizer Aerzte*) that the presence of the so-called "Koplik spots" in the pre-eruptive stage of measles is almost universal and is of great diagnostic importance. These spots vary greatly in size, but the original description of them given by Koplik is amply sufficient for their determination. The time of their appearance is somewhat variable. The author observed 75 cases, in 16 of which they were first noticed one day previous to the eruption; in 9 cases, two days previous; in 4, three days previous, and in 1 case, four days previous. In 30 cases they were not present until the first day of the eruption, and in 7 cases not until the second day. So far as Feer's observations extend, these spots are not found in other diseases. Especially is this the case in german measles. Here their absence or presence is a valuable differential diagnostic sign. They are also of great prophylactic value, as by their means cases may be isolated before the eruptive stage, and the other members of the family protected.—*Medical Record.*

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON ORTHOPEDIC SURGERY.

Meeting of December 20, 1901.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

DR. ROYAL WHITMAN presented a child twenty-one months old, suffering from a condition which had at first been mistaken and treated as tuberculous disease of the knee joint. The particular interest lay in the fact that it was rheumatoid arthritis; the mistake was not uncommon when the larger joints alone were affected, as the signs were similar in the early stage. At present, both knees are involved, also a wrist, ankle and the fingers. The case was presented first because rheumatoid arthritis was rare in young children, and to call attention to a common error in diagnosis.

TORTICOLLIS.

DR. WHITMAN presented a patient showing the ordinary treatment of confirmed torticollis. The permanency of the cure was the especial point to be noted. The treatment was by the open method of complete division of all the contracted tissues, over-correction of the deformity and fixation for several weeks in plaster of Paris. The advantage of a thorough operation was the ability to dispense with apparatus, while after the subcutaneous method apparatus was often necessary, because not always possible to completely overcome all deformity. The case showed to a moderate degree hemi-atrophy of the face, which was very marked in some instances.

RADICAL TREATMENT OF CLUB-FOOT.

DR. WHITMAN also showed the result of radical treatment of club-foot in a child eight years of age. One foot had been cured by the ordinary means in early life; the other foot was operated upon July last. The foot that recovered first was much larger than the other—an illustration of the effect of deformity in retarding development. He considered the Phelps' open operation the best of the more radical operations for the ordinary club-foot of childhood and adolescence. The advantage being that the inner border of the foot was lengthened instead of the outer side being shortened, as was the case in certain operations

on the bones. This patient was not confined to bed for more than one week, after that, it was allowed to walk about on the plaster of Paris bandage.

DR. V. P. GIBNEY asked Dr. Whitman if the occurrence of rheumatoid arthritis in young children was frequent in the literature.

DR. WHITMAN replied that he had not investigated the statistics on the subject but that he had seen several cases in his practice and would judge that it was not exceedingly uncommon in early life.

DR. W. R. TOWNSEND said, in referring to the case of torticollis operated upon by Dr. Whitman, that he could not agree with Dr. Whitman as to the disappearance of the scar. He had seen many of these scars which looked well shortly after operation yet had a tendency to grow more unsightly; he had even known keloid to develop. He thought that at all events patients should be warned of the possibility of a scar remaining.

DR. HOMER GIBNEY stated that he had seen a number of cases treated by both methods, open and subcutaneous. He had seen several scars disappear in young children. He considered the subcutaneous method the safest except in very severe cases.

DR. T. HALSTED MYERS said a transverse incision would give the same exposure of the operative field and would enable the deformity of the scar to be better concealed.

DR. WHITMAN had had no experience with keloid developing late in the scars; if such appeared it was usually within a few months after the operation he thought. He stated it as his experience that the scars practically disappeared.

EXTREME DEFORMITY OF RICKETS.

DR. V. P. GIBNEY presented 2 cases showing extreme deformity of rickets. The upper arms, back and legs were involved in one case giving the typical deformity of the disease. The second patient showed the lateral spinal curvature, the typical deformity of the thorax, beaded ribs, also deformity of the legs and arms. Both were being treated in the Bradford frame made convex in conjunction with general constitutional treatment.

CLUB-FOOT SHOE.

DR. GIBNEY also presented a patient wearing a club-foot brace seen in Hartford and used by Dr. Cook as a modification

of Taylor's club-foot shoe. In private practice he had been able with this apparatus to control some of the most obstinate cases. In the patient presented, treatment was begun when the patient was six weeks old. Several forms of apparatus had been used from time to time, but relapse had occurred. At present, after wearing the modified shoe the child holds her foot in perfect position and walks without deformity. The apparatus is a good retentive one, though it does not take the place of operation.

TALIPES EQUINO VARUS.

Another case of a child twenty-one months old was also shown by Dr. Gibney with talipes equino varus. The deformity was extreme and was corrected under an anesthetic and various methods had been employed; the last time it was seen it presented the typical "reel foot." It was thought that if the head of the astragalus could be removed, the fascia divided and the foot replaced a cure could be effected. A relapse occurred after six to eight months. Under anesthesia the foot was forcibly put in calcaneo valgus. Later a club-foot spring with pelvic band was put on and served fairly well, except that two sets of apparatus had to be kept on hand. Finally the modified braces were used successfully.

CASE FOR DIAGNOSIS.

DR. GIBNEY also presented a boy eleven years old for diagnosis. He came to the hospital some months ago with the history of an injury four weeks previous, having fallen, striking his hip. He got up and limped about, but the next night could not sleep; he had fever with delirium. On admission to hospital he walked with thigh flexed on pelvis, had little fever and complained of pain in the hip extending to the knee. He was thought to have hip disease and was treated with pulley in bed. After three weeks, the angle of extension was 110° , flexion normal, practically no pain on pressure. There was no apparent abscess and the spinal column was not involved. The diagnosis became doubtful. In October fluctuation was thought to be detected under the vastus externus. Incision was negative. The original diagnosis was finally abandoned and the case was considered one of periarthritis.

DR. MYERS asked Dr. Gibney what would be his prognosis in the case of the spinal curvature in the rickety patient.

DR. WHITMAN stated in reference to the case of rickets, that

when the patient entered the hospital the spinal deformity was thought to be the most serious of the distortions, and that for that reason the patient was placed on the frame.

DR. GIBNEY said that Dr. Whitman had partly answered the question of prognosis. He thought the child should be kept in over-extension for a while longer, and that after that a brace would keep the spine in place, and as the child developed the deformity would be in a measure outgrown. He considered the cases easy to manage so long as they could be kept under observation in a hospital; outside, the prognosis was not so good; no manual force had been applied to these cases yet.

DR. A. B. JUDSON suggested that while the children were being kept on the frame would be a good time to give mechanical treatment to the lower limbs.

DR. GIBNEY considered the suggestion a good one and would adopt it.

DR. S. A. TWINCH asked what dietetic treatment was adopted.

DR. GIBNEY stated that no scientific feeding was followed. Milk and cod-liver oil were given, sometimes iron. The object had been simply to keep the children well nourished.

DR. JUDSON said that the club-foot shoe that was shown seemed more like a modified Taylor brace. It was evidently an effective apparatus. He noticed the absence of an ankle joint, which was very properly omitted, as better leverage was thus obtained and there was no good reason for the fear that want of motion in the brace would impair ultimate motion in the ankle.

DR. MYERS asked Dr. Gibney his opinion of tuberculin injection for diagnosis.

DR. GIBNEY stated that he had not made use of these injection tests recently.

He cited a case at St. Luke's Hospital (the first case tried there) where several lesions developed after the injections which some years have been required to relieve.

DR. TOWNSEND said that at a symposium on tuberculosis recently held under the auspices of the New York County Medical Association, Dr. De Schweinitz and others discussed the tuberculin test at length. The concensus of opinion as expressed by the men present was, that as a test for tuberculosis its value was doubtful and that the injections were inocuous.

INCIPIENT HIP DISEASE—RECOVERY.

DR. A. B. JUDSON presented a girl eight years old, who had been before the section on November 16, 1900. At that time the history of left hip disease, covering twelve weeks, had included inconstant lameness, knee pain and reflex, night cries, muscular atrophy and limitation of motion. A steel crutch and high shoe had been worn from November, 1900, to November, 1901. Recovery had been so complete that the only traces were three-eighth inch shortening and one-fourth inch muscular atrophy. The case illustrated the importance of early diagnosis. Traction and immobilization had not been sought. Recovery visited the limb freed from the weight of the body by being made pendant. In this artificial environment the focus was quenched, which otherwise would have broken into flame.

A DEVICE FOR DEFORMITIES OF THE KNEE.

DR. JUDSON presented a girl ten years old, wearing a device useful in deformities of the knee. The patient was one with white swelling of the knee, presented to the section October 20, 1899. The problem was to prevent the fixative brace from seeking the inner side, where it caused knock-knee, and to keep it behind, to oppose flexion. The brace was made of one piece with the shoe in such a way that when the shoe was on the brace would be in the proper place. A light steel bar extended up the leg and was fastened to the upright part of the brace by a sliding ring keeper. Its lower part, bent at a right angle, was screwed to the under side of the heel of the shoe at an angle to secure the effect desired, keeping the brace behind to oppose flexion or to the outer side to oppose knock-knee.

SOFTENING OF THE TIBIA.

DR. J. P. FISKE presented a case of localized softening of the tibia at the age of adolescence. The patient, a girl, now fourteen years of age, was first seen in 1898, when she complained of localized pain in the lower part of the leg well above the ankle joint, thought to be a referred pain due to improper gait. A strap bound around the part brought no relief. The curve at the lower part of the tibia increased. At this time a positive diagnosis of tuberculous disease was made by a distinguished consultant and fixation advised; plaster splint was worn for six months. At the end of that time the leg was in the same condition except atrophy, but measurements showed that the tibial

curve had increased. Two months later exploratory incision revealed negative results. February, 1901, an osteotomy was performed in the lower one-fourth of the tibia, the fibula shortened one-eighth inch, the deformity corrected and leg put up in plaster. Ten days after the operation the patient was fitted with an ambulant splint and six weeks later walked without the apparatus. Since then there have been no symptoms. The diagnosis of softening of the lower part of the tibia seems to have been the proper one. There is no difference in the length of the tibia.

CONGENITAL DEFICIENCIES.

A second patient presented by Dr. Fiske was one of congenital absence of fibulæ and outer side of foot, with equinus. The patient was seen at the age of one year. The fibulæ and several of the metatarsal bones were absent, also the heel was undeveloped. An osteotomy was performed at once with tenotomy on the tendo Achilles, the position of the feet corrected. At present child is able to go about with a light brace.

DR. GEORGE R. ELLIOTT asked Dr. Fiske what kind of softening was present in the lower third of the tibia in the patient he presented.

DR. FISKE stated that he had not reached any definite conclusion. He saw no reason why it should not be included in the same class with softening of the neck of the femur occurring at the age of adolescence. It might possibly be due to some error in development and in part to the weight of the patient.

DOUBLE CONGENITAL CLUB-FOOT.

DR. LEONARD W. ELY presented a patient one year old showing result of treatment for double congenital club-foot. The point of interest was that the right foot was treated uninterruptedly with a brace and the left with plaster of Paris. In contradiction to the general idea that plaster of Paris causes atrophy, the right leg was shown to be much smaller than the left.

TENDON TRANSPLANTATION.

DR. R. A. HIBBS showed the result of tendon transplantation done in July, 1901, for paralysis of the tibialis anticus muscle. The extensor proprius hallucis was inserted into the periosteum of the scaphoid, and its distal end into the first

division of the common extensus. The patient (twenty-one years) exercised a good deal of intelligence in perfecting the action of the muscle with its new attachment. The foot had been in a position of marked valgus, with the scaphoid very prominent. The deformity was completely corrected. He stated that in all his cases during the past two years, when possible, he had attached the transplanted muscles to the periosteum.

DR. MYERS said the point mentioned by Dr. Hibbs in attaching the tendon to the periosteum was important; he did not believe in matting tendons together; the connecting bands stretched and the union was ineffective. He had just dissected such a case. If the tendons were divided and the live one united to the tendon of the paralyzed muscle there was also often stretching.

DR. WHITMAN said that the operation of periosteal tendon transplantation had been extensively practiced by Lange, of Munich, who had reported many cases; his own experience with the operation had been favorable.

DR. FISKE emphasized the importance of transplanting muscle tendons into the periosteum, especially when the muscle was to work at raising the inner side of the foot or the heel.

CONGENITAL DISLOCATION OF THE HIP UNDER TREATMENT.

DR. ELLIOTT presented a child, aged two years, upon whom he had reduced a congenital dislocation of the hip by the Lorenz non-cutting method, showing the bandage in position. He presented the patient to show the position of the leg when the dislocation had been successfully reduced. A slight degree of hyper-abduction was necessary with the knee pressed back slightly posterior to the transverse axis of the pelvis. There was frequently considerable difficulty in getting the head of the femur into the acetabulum and of getting the knee down to the mid transverse pelvic plane or posterior to it, but unless that could be accomplished the operation should be abandoned as a failure, as relapse was certain.

In the patient presented he felt quite positive of a good result.

Current Literature.

PATHOLOGY.

Nuthall, A. W., and Hunter, W.: *Bacteriology of Cerebro-Spinal Meningitis.* (*British Medical Journal*. No. 2125. 1901.)

In 10 cases of meningitis a diplococcus was isolated from the cerebrospinal fluid obtained by lumbar puncture during life. This coccus agreed morphologically and biologically with the diplococcus intracellularis meningitis of Weichselbaum, but occurred in two slightly different forms, types A and B. In some cases the diplococcus was present in pure culture, in others associated with other micro-organisms, for example, bacillus influenza and bacillus tuberculosis. The clinical picture and pathological changes found in these cases were those met with in posterior basal meningitis, which is, in all probability, a sporadic form of cerebrospinal meningitis and is caused by the same bacterium. In the majority of the cases it was impossible, from the clinical aspect alone, to make a correct diagnosis of the variety of meningitis present.

MEDICINE.

Durante, Durando: *Cytologic Examination of Ascitic Fluid in Tuberculous Peritonitis in Childhood.* (*La Pediatria. Anno ix.*, No. 11.)

Microscopic study of peritoneal fluid may be of great value in differential diagnosis in certain cases. The cytologic formula in tuberculous peritonitis shows a preponderance of mononuclear lymphocytes, and polynucleosis is the exception. The latter condition appears to preponderate in certain non-tuberculous affections which produce ascites.

Crandall, Floyd M.: *Some of the More Uncommon Symptoms of Scarlet Fever.* (*The International Medical Magazine. Vol. xi.*, No. 1.)

Among the rarer phenomena of the disease are the joint lesions which are enumerated as follows in the order of their frequency: synovitis, which is due directly to the specific virus;

septic arthritis, which is a feature of streptococcus infection; and rheumatic and tuberculous lesions respectively, which are of course purely fortuitous complications, save for the predisposition afforded by the scarlatina.

The genuine strawberry tongue is placed among the more uncommon lesions of scarlatina. At first heavily coated, with or without red points, it rapidly clears up, leaving a bright red, rough surface with prominent papillæ. Early nephritis sometimes occurs. It is of septic origin and does not lead to uremia.

Cappuccio, Domenico: Cause of Multiple Osteogenic Exostoses in Children. (*La Pediatria.* Anno ix., No. 11.)

A five-year-old boy, who had always been healthy, exhibited numerous exostoses, affecting nearly all the bones save those of the head and face. The first of these to appear was upon the right humerus, when the patient was a year old.

The author opposes the belief that this affection has anything in common with rickets and regards these formations as indelible vestiges of an embryonal anomaly which he attempts to describe on theoretical principles.

Israel, P.: Fede's Disease. (*La Pediatria.* Anno ix., No. 12.)

Israel, who is assistant to Prof. Escherich, the pediatrician of the University of Gratz, Austria, has placed upon record the first cases of this malady to be reported outside of Italian soil, with the exception of two observations from French sources which were studied in 1895. Israel's cases certainly take priority among German-speaking peoples.

The first occurred in a baby aged ten months, who required treatment for retropharyngeal abscess. After the latter had been opened and had healed, the infant began to ail anew, and developed pneumonia, tetany and otorrhea. At this period a small ulcer was noted upon the frenulum of the tongue. A lardaceous slough was present on its surface. The ulcer seemed inclined to spread and was cauterized with nitrate of silver. A similar ulcer with a fibrinous exudate formed at the right mandibular angle. It presented the same fibrinous deposit upon its floor.

In the meantime, the first lesion, despite the cautery, continued to extend. The attacks of tetany became more frequent

and the infant died with symptoms of unconsciousness, cyanosis and apnea.

The second patient, a female, was five months old, and had been much afflicted from the time of birth. Some of the lesions present were suppuration of the umbilical stump and genitals, eclampsia, aphthæ, severe intestinal catarrh and enlarged spleen. Later there developed eczema of the face, and otorrhea; as the child was cutting its lower central incisors the characteristic lesion of Fede's disease was noticed. In this case the lesion was of the neoplastic rather than the ulcerous type; it was not seated upon the frenulum but just beneath the tip of the tongue, and its site corresponded to an imaginary prolongation of the raphe. It was directly above the lower incisors which made an imprint into its substance.

As treatment of caustics was unavailing, the new formation was excised. The microscope revealed the histological characters of papilloma. No pathogenic bacteria were found.

Bond, C. Knox: Measles in Second Attack and German Measles; Differential Diagnosis. (*British Medical Journal.* No. 2142.)

Children with an alleged history of measles are very prone to be stricken by "second attacks." The latter may possibly be examples of german measles, or of so-called "fourth disease," but they occur nevertheless. While these second attacks simulate rötheln, the author is inclined to believe that the patients are really subjects of a recrudescence of measles. Koplik's spots are sometimes in evidence in these cases. Everything goes to show that these children are stricken a second time by the original disease.

Immerwol, V.: The Cure of Hydrocephalus. (*Arch. f. Kinderheilk.* Vol. xxxii., No. 5 and 6.)

Ten cases of hydrocephalus were treated, 9 being of the congenital variety and 1 acquired. The former were all treated antisiphilitically; and, in addition, a lateral ventricle was punctured in 5 cases, tincture of iodin being afterward injected into 1. In the other 4 single or repeated lumbar puncture was practiced. In 8 cases the results were negative; but 1 of the congenital cases was cured at the age of six months, and

five years later the child was perfectly well. The acquired case, which followed serious meningitis in a six-months-old baby, was also cured by means of repeated lumbar punctures (the cerebrospinal fluid proved to be free from bacteria) and the administration of sodium iodid.

Lumbar punctures are indicated in every case of acquired hydrocephalus; the procedure is both easy and harmless. It may be tried (as an experiment) in the congenital cases, but in these antiluetic treatment must never be omitted.

Bouyer : Benign Hemorrhagic Scarlatina. (*Arch. de Méd. des. Enfants.* Vol. v., No. 1.)

A girl of four and one-half years had an attack of scarlet fever, and during the desquamative stage albuminuria appeared. For three days there was marked hematuria; then the color of the urine returned to normal, and severe, repeated attacks of epistaxis occurred, necessitating tamponing the nares. Vomiting and petechiae also appeared. In spite of the grave prognosis to which these hemorrhages gave rise, the patient made a perfect recovery.

During an attack of measles at the age of three years the child had also suffered from epistaxis. It is possible that the bleeding was due to a hemophilic condition as much as to the scarlatina.

Horne, W. Jobson: The Larynx—a Site of Infection In Certain Diseases of the Lymphatic Glands Known as Lymphadenoma, Lymphosarcoma, Tuberculous Lymphadenitis, etc. (*The Journal of Laryngology.* Vol. xvi., No. 12.)

Of 4 cases in which a relation of cause and effect appeared to subsist between ulceration of the larynx and disease of the lymph nodes, one occurred in a girl of fourteen years, who presented, upon autopsy, a high degree of enlargement of the supra-clavicular lymph nodes. Some increase in size was also present in the bronchial, tracheal, aortic and other lymph nodes. The larynx was ulcerated over the posterior third of the right vocal cord and right side of the free margin of the epiglottis. No evidences of tuberculosis could be found. According to the microscope the disease of the lymph nodes in this case should be lymphadenoma.

Those who regard this affection as an atypical tuberculosis of the lymph glands might look upon the laryngeal ulcers as

examples of primary laryngeal infection. In the case just cited the ulceration was certainly not of tuberculous character although it might readily have served as a point of entry for these germs.

Finny, J. Magee: A Case of Dermatitis Gangrenosa.
(*Dublin Journal of Medical Science.* No. 360.)

The patient was a boy aged two years and nine months, who was attacked at the outset by a species of impetigo with lesions of pin-head size. The localities involved comprised the face and scalp, backs of the wrists, nates and genitals. In the course of some three weeks these pustules became transformed into large and deep ulcers. The process extended from the eyelids to the bulb of the eye with resulting panophthalmitis. The general condition of the baby was very poor and it succumbed within less than a month from the inception of the malady.

Autopsy revealed tuberculosis of the thymus, lungs and bronchial and mesenteric lymph nodes, but there was no evidence that the cutaneous lesions were themselves tuberculous. Dermatitis gangrenosa of children is sufficiently familiar as an entity, the nature of which, however, is quite obscure.

Rotch, T. M., and Morse, J. L.: Report on Pediatrics.
(*Boston Medical and Surgical Journal.* Vol. cxlv., No. 1.)

Heubner (*Jahrbericht für Kinderheilkunde*, 1901) in a study of the pathology of the intestines in infantile atrophy arrives at the following conclusions:

(1) In the true atrophy of infants there are a series of cases in which, on careful examination, all grave changes of the intestinal epithelium, intestinal mucous membrane, and of the rest of the intestinal wall, were absent in all parts of the intestines.

(2) The alterations described by some authors as intestinal atrophy can be produced in any normal intestine by simple distension.

(3) The so-called spontaneous intestinal atrophy has always been found in distended parts of the intestines; never in contracted.

(4) The conclusion must be drawn from two and three that the lesions attributed to atrophy are due to the varying physical conditions of the intestinal wall. Hence the anatomical basis for the conception of a true atrophy of the mucous membrane in the general atrophy of infancy cannot be considered as

proven, and the whole teaching founded thereon is therefore untenable.

Brooksbank, James G. T.: Three Cases of Early Infantile Tabes Due to Congenital Syphilis and Hereditary Neuropathy. (*The Lancet.* No. 4087.)

Of 7 cases narrated, 4 occurred in children under the age of fifteen years. The condition must be extremely rare, judging from the negative experience of some clinicians. It is of course highly important to discriminate between cases of this type and the hereditary, or Friedrich's ataxia, the latter having no connection with syphilis. In the specific type we find the stigmata or history of congenital syphilis and the Argyll-Robertson pupil. The diagnosis of tabes in some or all of these cases appears to depend almost wholly upon the absence of the patellar-reflex and the presence of the Argyll-Robertson pupil. Anesthesia, incoordination, etc., do not appear to have developed.

Galli, Paolo: Typhoid Fever Complicated with Phlebitis. (*La Pediatria.* Anno ix., No. 11.)

In the course of an attack of typhoid in a boy aged five years, the patient experienced a chill with a special rise of temperature and pain referred to the region of the left knee. A diagnosis of typhoid pseudorheumatism was made. Some two days later phlebitis of the internal saphena was recognized as the real complication. The condition yielded readily to treatment (cold applications, immobilization). The same affection developed in the opposite leg, but was of a much milder degree. The total duration of these phlebitic complications was twenty-six days.

Royster, Lawrence T.: Diphtheria with Special Reference to the Symptoms and Treatment. (*Medical News.* Vol. xxx., No. 9.)

The author calls attention to the fact that the period of incubation of diphtheria may be shorter than is usually stated. He believes that from one to three days is the usual time. He regards a rapid pulse, out of proportion to the temperature, as one of the most valuable diagnostic features. It is probably due to the absorption of toxins which in its rapidity is unequaled in any other disease.

He does not consider that there is any possibility of determining the difference between a pure diphtheria infection and the

mixed form by the constitutional symptoms, although the mixed infections are much more severe. The severity of the constitutional symptoms in general is in direct proportion to the extent of the membrane. In the septic cases albumin is more apt to be present in the urine.

Membranous croup is a specific diphtheritic infection. Very rarely non-diphtheritic croup has occurred, but its rarity is admitted by all observers and no chances should be taken in the treatment of all cases.

In the treatment of diphtheria, antitoxin, stimulation, nasal irrigation, proper feeding and the general care of the patient's strength should be the rule.

Haight, A. T.: Tuberculosis of the Eye. (*American Medicine.* Vol. iii., No. 6.)

Tuberculous infection, and particularly primary infection of the eye, is no longer a question, and not uncommon as less supposed even ten years ago. Bach laid down the following:

1. Tuberculosis of the eye is by no means a rare affection.
2. All parts of the eye may be attacked by the disease.
3. It plays a particularly important role in diseases of the uveal tract.
4. The eye diseases may be the only and earliest manifestation of the tuberculous infection.

The age limits are wide—from ten months to thirty years. The disease is more general near the time of puberty. The iris is the most frequent starting point of tuberculosis, from which the disease spreads to the other tunics with great rapidity.

Some authorities believe that the disease starts from the inoculation in a healthy subject from an abrasion in the conjunctiva. Others believe that the initial lesion is a tuberculous ulcer.

The general subject of tuberculosis of the various coats of the eye is considered and full quotations are made from the literature. In conclusion the author states:

“First, that I am reasonably satisfied from the cases that have been reported, and from my own observation, that at least 75 per cent. of all cases of tuberculosis of the eye are due to two primary causes, either to infection from other parts of the body, or from direct injury to the eye; and second, that in primary tuberculosis of the eye early, diagnosis and operation robs death of many of its victims.”

SURGERY.

Long, J. W.: Foreign Bodies in the Esophagus. (*The Charlotte Medical Journal.* Vol. xx., No. 1.)

In the first case related the object swallowed was a tin whistle. When the patient, a boy aged seven years, was first seen it was five days from the time of the accident. The first symptom was dysphagia. Another symptom was salivation. The fluoroscope located the whistle in the esophagus; and after vain attempts to remove it by probings, etc., it was "stripped upwards" by external manipulation, the patient having been placed under the influence of chloroform. This resource appears to have been derived from veterinary practice. Another case very much like the preceding occurred in a boy aged four years. The whistle caused remarkably little disturbance in this patient and was removed on the day following the accident by stripping it upward.

In a third case the patient was but forty-six days old and the object swallowed was a safety-pin, which had lodged unnoticed in the pharynx some days before. A radiograph revealed the presence of the pin in the thoracic portion of the esophagus. The object was successfully removed by low cervical esophagotomy. In defiance of custom the baby was nourished at once and throughout convalescence, from its mother's breast and made a complete recovery.

Darling, Gilbert : Note of a Case of Suppurative Peritonitis Due to Pneumococcal Infection and Associated with Empyema. (*The Birmingham Medical Review.* No. 280.)

After vague general and pulmonary symptoms lasting a week an acute abdominal malady set in, characterized by pain, vomiting and diarrhea. The patient, a girl aged nine years, was not seen until several weeks after this acute affection, when she presented the picture of both empyema and peritonitis. The exploring needle established the existence of the former, and the pleural sac was incised and drained. About one week later laparotomy was performed and a pint and a half of greenish pus was evacuated. The pneumococcus was present in the pus from both localities. The peritoneum in this case was drained, but not irrigated. This omission is regarded by the author as a serious blunder. Pus re-formed as soon as the drain was re-

moved and the convalescent period was greatly protracted. The case is believed to have been an example of general pneumococcus sepsis.

Laurie, James: Three Cases of Imperforate Anus and Rectum. (*The Lancet.* No. 4090.)

No less than 3 cases of this very rare congenital anomaly were seen by the author within a single year. This number is as large as that recorded in a total material of over 6,000 deliveries in Vienna and Dublin.

In the first case of Laurie's series (all of which occurred in Glasgow in 1895) there was a well-formed anus, the imperforation consisting of a thick transverse membrane in the lower rectum, which was disposed of by a crucial incision.

In the second case the external aperture of the anus was occluded by a delicate membrane.

In the third child there was no indication of an anus. The rectum, which ended in a blind pouch, was incised and sutured to the skin. The child made a good recovery and had full control over its bowels.

Goldthwait, Joel E.: Osteomyelitis Following Measles. (*Annals of Gynecology and Pediatry.* (Vol. xiv., No 15.)

Ten days after experiencing an attack of measles a six-year-old girl developed pain and swelling in the left leg. Pus formed rapidly and after its evacuation the upper portion of the tibia was found denuded of periosteum. This bone affection was accompanied by a mild attack of pericarditis.

Pus continued to discharge from the tibia and the knee-joint became inflamed, although it did not suppurate. The limb was immobilized. Sequestra were cast off from time to time. The defects in the diaphysis were made good by the formation of new bone, but the epiphyseal cartilage was destroyed so that the development of the limb will doubtless suffer. The synovitis subsided.

At the time of writing a small sinus still persists, and the left leg has become shorter than its fellow by a half-inch. The knee-joint is mobile for about 20°.

Rodman, W. L.: A Case of Perforating Typhoid Ulcer; Laparotomy; Recovery. (*American Medicine.* Vol. ii., No. 21.)

The perforation occurred during the fourth week of an unusually severe case of typhoid fever in a twelve-year-old girl.

Laparotomy was performed thirty-seven hours afterward, when the patient was in an almost pulseless condition. The perforation was found at once, in the line of the incision, and was closed with Lembert sutures. General peritonitis was present. Contrary to all expectations, the child recovered perfectly.

The case teaches that a patient with perforation, even though in general peritonitis, should be given the benefit of a laparotomy, if in a hospital where such work can be done with reasonable dispatch. Only two successful cases have been reported in which the time between perforation and operation was as long as in this instance. A second lesson to be drawn is that a general anesthetic can be borne even in so grave a condition as this patient was in at the time of operation.

HYGIENE AND THERAPEUTICS.

Jacobi, A. : Notes on Cow's Milk and Infant Tuberculosis.
(*New York Medical Journal.* No. 1208.)

Primary intestinal and mesenteric tuberculoses are rare, but we know that Koch's bacillus is able to penetrate solid tissues without the production of local morbidity, and it is likewise true that peritoneal tuberculosis is extremely common, its source in many cases being represented by the intestinal tube. No rules prohibiting the sale and use of milk from cows with udder or general tuberculosis can be too strict.

Warner, Francis : Mental School Hygiene. (*The Lancet.* No. 4059.)

Favorable mental signs in a school-child are spontaneity, control through the senses (favoring imitation) retentive memory and responsiveness in action and choice of words. Such a child has a lively facial expression, is active, talkative, likes to take part in set pastimes, imitates well and improves constantly in accuracy. What it needs mostly is experience, such as is conferred by the guidance of a skilful teacher, and leads to self-control and volition.

Some children are controlled best by signs, others by word of command. Various kinds of drill are useful, especially the eye-drill, which improves the degree of accuracy in the child's studies. Every means should be taken to prevent confusion and fatigue. Impressions should be made one at a time. Thus things should be compared with likes before comparison with

different things. The child's spontaneity should be guided into co-ordinated thinking, otherwise it exhausts itself.

Children are readily classed into groups, such as nervous, delicate, dull, listless or inert, defective, etc. Each of these groups requires special methods of handling. Thus the dull and listless require physical training to remove their drawbacks. Mental hygiene is based entirely upon physiology.

McFarland, Joseph: **Vaccine Virus—Its Preparation and the Complications Attending Its Use.** (*Journal of the American Medical Association.* Vol. xxxviii., No. 4.)

It is the exception to be able to produce cow-pox by inoculating cattle with human small-pox. The proportion of success is very much greater if the latter is first passed through the horse, or better still, the monkey, such experiments usually giving positive results. Once cow-pox is fairly started, the disease is readily maintained.

The theory of the nature of vaccination and of the immunity conferred thereby towards small-pox is to-day as follows: The germs of variola, forced to grow upon the cow, lose much of their virulence, so that cow-pox is a local affection only. Nevertheless the reaction of the human subject under vaccination is sufficient to confer immunity.

The chief advantages of bovine virus lie in its safety, as the transmission of syphilis, erysipelas and other diseases which prevail in mankind becomes impossible; and in its adaptability, as it may be prepared in accordance with the heaviest demands. Ivory points of bovine virus are not sterile and may contain pathogenic bacteria. Their use is inconsistent, therefore, with the spirit of the age. In 1891 Copeman discovered the remarkable fact that glycerin is able to sterilize vaccine-pulp without at the same time affecting the properties of the unknown germ of vaccine. The latter, however, succumbs after a short interval. Hence the necessity of using glycernized lymph while very fresh.

In vaccination with the latter the patient is still exposed to infection from his own skin, and to contamination of the vaccine-wound. The skin may be sterilized readily, but a perfect method for the protection of the sore has not yet been devised. Shields should be avoided, as being unclean, irritating, obstructing the lymphatic circulation and producing conditions suitable for the growth of the tetanus bacillus.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

APRIL, 1902.

[No. 4.

Original Communications.

PYLORIC STENOSIS IN INFANTS, WITH A REPORT OF CASES.*

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Judging from the increasing number of cases of hypertrophic pyloric stenosis published annually, the conclusion is warranted that this anomaly is by no means rare. The literature of this subject is quite extensive, and has been carefully reviewed by Meltzer, Pritchard, Abel, Nicoll and others.

The clinical phenomena are fairly uniform and typical, and the diagnosis offers little difficulty in the later stages.

After a certain interval from birth, varying from a day to three months, the infant, without apparent cause, begins to vomit. This is usually attributed to simple indigestion, or to some fault in the mother's milk. Under careful regulation of the diet and the administration of antemetics, improvement, if it occurs at all, is only temporary. The vomiting becomes worse and is projectile. Large quantities of milk are thus ejected, more than can be accounted for by the previous feeding. Obstinate constipation ensues. The infant more or less rapidly loses in weight.

The physical signs may be entirely negative in the beginning. A palpable tumor at the pylorus is exceptionally found. Progressive dilatation of the stomach occurs. On inspection of the abdomen the upper zone will be observed to be bulging, and contrasts strikingly with the depressed lower zone. The bulging of the epigastrium subsides visibly after a paroxysm of vomiting. Peristaltic waves are visible over the epigastrium after the abdominal walls become attenuated.

Examination of the gastric contents reveals the fact that the

* Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

stomach does not empty itself in one or two hours. In some cases hydrochloric acid is in excess, but more often it is diminished or almost absent.

Coincidently with the gastric dilatation, the signs of gastric catarrh may become manifest. The contents of the stomach show evidences of decomposition; the organic acids, lactic and butyric, being present. Large quantities of mucus are vomited, perhaps once in twenty-four hours, or once in two days. The condition of the infant grows steadily worse, the distress is more severe and the fatal issue is inevitable.

Such, in brief, is a clinical picture of this disease in its worst form. Post-mortem the pylorus is found to be very much thickened. The pyloric lumen is stenosed to a varying degree. The hypertrophy at the pylorus is composed principally of cir-

Case	Age	Method of Preparing	Thickness of whole wall	Whole muscle layer	Circular muscle layer	Long muscle layer	Sub-mucous	Mucous	Lumen of Pylorus
1	16 Weeks	Müller fl. and freezing	1.5 mm.	1.05 mm.	0.75	0.3	0.2	0.25	
2	14 Weeks	do do Necropsy	4.7 5.25	3.4 4.5	2.6	0.8	0.9	0.4	3.5 mm.
3	12 mos	Müller fl. and freezing	2.31	1.55	1.1	0.45	0.26	0.5	
4	11 mos	Formol and Celloid'in Necropsy	4.2 5.5	2.9 4.	2.5	0.4	0.5	0.8	4 mm.

cular muscular fibres; but the longitudinal layer, the mucous and submucous coat also partake of this overgrowth. The accompanying table is taken from Batten's article and shows the relative enlargement. Cases I. and III. are normal at the pylorus. Numbers II. and IV. are hypertrophic.

The pyloric opening varies in size, but the diameter of the canal at the necropsy is hardly a fair measure of its possible size during life. The muscular wall of the stomach is also very much thickened.

As illustrating the disease in all its severity I herewith give the report of a case which I saw in consultation. The history was kindly furnished by the physician in charge, Dr. W. B.

Moore. I also take the liberty of demonstrating the stomach removed at autopsy.

CASE I. "The subject of this report is a female child born of healthy parents July 4, 1900. The labor was three weeks premature, but otherwise normal. Five days after birth the child had frequent green stools, one stool containing mucus and a slight amount of blood. There was some tenesmus but no vomiting. The nurse gave a small dose of calomel followed by castor oil, and later one grain of bismuth subnitrate every few hours. A physician was not summoned. Thereafter the baby did well until July 22nd, eighteen days after birth, when it became restless, cried frequently and vomited after nursing. I saw it for the first time the following afternoon. It was small but fairly well nourished and was crying as if in pain. The skin was slightly icteric and the fontanelle was depressed. Inspection of the mouth and fauces showed nothing abnormal. Nothing was found on examining the chest and abdomen. The temperature was normal. The nursing habits were good with the exception that the child was allowed to remain too long at the breast. The bowels had been evacuated several times, but the urine had not been passed for fifteen hours. The last urine voided showed a quantity of brick-dust deposits on the napkin. The mother was told to shorten the time of nursing. A diuretic was prescribed. The next day the child was quieter, although it was still restless and cried frequently. During the night it had vomited but once, but the mother thought the amount surprisingly large. Two small stools were passed. The passage of urine had been free but the brick-dust stains were still present. On the third day of the attack the child vomited after each nursing. The vomiting did not occur immediately, but was from one to two hours after the nursing. The vomited matter was free from curds and contained mucus. The quantity was such as to attract the mother's attention, who spoke of it as a 'double handful.' The child seemed quite sick before vomiting, but afterwards became brighter and was again eager for the breast. Failing nutrition began to manifest itself. During the day several small, dark green stools were passed, which seemed to contain only mucus and bile. The temperature was normal. Potassium bromid gr. v, was given by the rectum, and was repeated in four hours. The breast milk was temporarily withdrawn and a sample taken for examination. On the fourth day

Dr. John Zahorsky saw the case with me. The nurse reported that sometime after giving the potassium bromid by rectum a normal yellow stool had been passed. The vomiting had continued unchanged. On examining the abdomen Dr. Zahorsky discovered a tumor in the epigastric region, which was hard and readily escaped from under the fingers. It gave the impression of an intussusception of the transverse colon, but this was excluded by the absence of the characteristic stools and tenesmus. Dr. Carl Fisch reported that the milk contained 4 per cent. proteids. Minute doses of creosote were ordered. Normal salt solution was given by the rectum. In order to dilute the breast milk the mother was ordered to give the child albumen water just before allowing it to nurse. The fifth day the vomiting continued the same; the emaciation was increasing. The tumor which was felt on the preceding day could not be found. One small stool of mucus and bile was passed. The temperature was 99.5°. In order to exclude any infective process a blood smear was examined. Beyond a slight lymphocytosis it was normal. In order to determine the effect of a cathartic, gray powder was administered. After it was given the vomit was bile stained. In consequence Dr. Zahorsky and I concluded that there was an obstruction, from some congenital defect, but owing to the presence of bile in the vomit, that it was located below the pylorus. On the sixth day the symptoms continued unchanged and the emaciation was increased. Dr. E. W. Saunders was asked to see the child and, after considering the symptoms, made a diagnosis of pyloric stenosis, in which Dr. Zahorsky and I concurred. One grain of chloral was ordered to be given by the rectum twice daily. A grave prognosis was made. The parents refused operation, which was proposed, and were unwilling that the stomach tube should be used. On the seventh day it was noticed that the stomach was easily palpable. The lower border was made out by palpation and percussion at the level of the navel. During the day the child retained two nursings taken two hours apart, and vomited the whole three hours after the last. On the eighth day the lower border of the stomach was found 1 cm. below the navel. The ninth day slight vomiting occurred after each nursing, but in the afternoon the mother reported that enough sour curdled milk was vomited to wet two diapers thoroughly. From the tenth to the fifteenth day the child grew more and more emaciated.

The vomiting occurred at longer intervals but in larger quantities. Each day one or two very small brown stools were passed. The temperature ranged from 99° to 102.5°. On the fifteenth day the stomach was plainly visible. Peristaltic waves passed over it at intervals of two or three minutes. There was apparently an hour glass contraction, the stomach bulging on either side, with a sulcus in the middle. The child grew worse until the eighteenth day, when it died in an extremely emaciated condition.

"Permission was obtained to open the abdomen and remove the stomach. The peritoneum, liver and spleen were apparently normal. The intestines were empty. The pylorus immediately attracted attention owing to its almost cartilaginous consistency. The stomach contained an ounce of milky fluid. The mucous membrane was slightly congested, and thrown into longitudinal folds. The muscular coat of the stomach was hypertrophic, averaging 2 mm. in thickness. The hypertrophy was greater at the antrum pylori than elsewhere. A probe 2 mm. in diameter was passed through the pylorus, which began as an abrupt narrowing of the antrum pylori and terminated as abruptly in the comparatively wide duodenum. The length of the pylorus was 2.5 cm. and its muscular layer was 6 mm. in thickness. The mucous membrane of the pylorus was thrown into longitudinal folds. An histologic examination was made by Dr. Fisch, who reported that the hypertrophy was confined to the circular muscular layer of the stomach and pylorus. The other tissues were normal.

"The misleading symptom in this case was the presence of bile in the vomitus. It is evident that the violent contraction of the abdominal muscles during emesis may force a small quantity of fluid intestinal contents into the stomach."

But all cases do not run such a rapid course. The fatal issue may be warded off and the infant may recover. It is my purpose to draw particular attention to these milder cases and discuss their successful management.

CASE II.—Baby. Was nursed at the breast for two months. Vomiting commenced when the infant was six weeks old. This hyperemesis gradually became more aggravated. The infant was taken from the breast by the physician then in charge and placed on artificial food. Various modifications of cow's milk and patent foods were used but with little success. At times

an improvement would be noticed for a short time, then a relapse would occur. When about five months old it first came under my care. Found an emaciated infant weighing about nine pounds. No pulmonary, cardiac, or nervous abnormalities.

The stomach was enlarged, reaching below the umbilicus. Vomiting would occur after each feeding. Usually small quantities would be successively vomited until most of the food ingested would be lost. No tumor was palpable at the pylorus. Free hydrochloric acid was not demonstrable in the vomitus by Guinzburg's test. Considerable mucus was present in the vomit at times.

The little patient was put on a whey and cream mixture. It improved for a few days, and then relapsed. Inquiry elicited the fact that the mother was giving 8 to 9 ozs. of milk at each feeding. The stomach was washed out once only, and the quantity of food restricted to 3 ozs. The infant then began to gain in weight and the vomiting gradually ceased. The infant is one and a half years old now and a very well developed child.

The recovery of this patient dates from the time it was put on a whey mixture. The coagula formed by the casein seemed to choke up the pylorus. No medicinal agent was employed except a few doses of chloral at the onset.

CASE III.—Baby. Female. Weighed eight pounds at birth. She was breast-fed for three weeks, but did not thrive. A severe mastitis developed in the mother and the attending physician ordered the infant to be taken from the breast and placed on condensed milk. Two days later the patient commenced to vomit. This persisted in spite of treatment. The physician ordered modified milk, Mellin's food and malted milk, successively, but the hyperemesis persisted. Throughout all this time the baby was obstinately constipated. It was then put on peptonized milk, and seemed to improve somewhat. A wet nurse was finally procured, but the vomiting became more violent. For one month this nurse tried to nourish the infant, but it rapidly lost weight until it weighed only five pounds at the age of three months. The physician in charge then discontinued feeding by the stomach, and rectal alimentation only was employed for two weeks. The infant, after this prolonged abstinence from stomach feeding, was able to retain a little peptonized milk. She was five months old when she came under my

care, and weighed five pounds. The diet was peptonized milk, $\frac{1}{2}$ oz. at a feeding, 6 ozs. per diem. I increased the allowance to 1 oz. at a feeding, 18 ozs. per diem. If she took more than $1\frac{1}{4}$ ozs., she invariably vomited the whole feeding. The thickened wall of the stomach could be plainly made out through the thin wall of the abdomen. I could not be certain that it was a case of pyloric stenosis at that time, because of the absence of dilatation, the symptoms having persisted so long.

The vomiting almost ceased and the infant gained in weight. A wet nurse was procured after some weeks, but her milk caused a relapse. At times, from very slight causes, stagnation of the gastric contents took place, followed by hyperesthesia of the gastric mucous membrane and pyloric spasm, and the condition of the little sufferer grew worse.

In April a persistent attack of vomiting began. Operation was finally advised, but as the infant improved before she was taken to hospital, it was postponed.

May, 1901, the infant is fourteen months old and weighs ten pounds. She is taking a mixture of 8 per cent. cream with a dextrinized food, gaining in weight, does not vomit, and looks very well. The stomach, when moderately distended, reaches $\frac{1}{2}$ cm. below the umbilicus.

November, 1901.—At twenty months the weight is fifteen pounds, and the child, although a midget, is well-nourished, and has had no relapse for some months. The typical pear-shaped abdomen has taken on the normal appearance of infancy, the flanks and hypogastrium are well rounded and resonant.

The diagnosis in this case was for a long time in doubt, but the gastric hypertrophy, first observed, followed by a gradual dilatation, the peristaltic waves seen only after the case had been long under observation, the typical shape of the abdomen, placed it finally beyond a doubt.

The puzzling features were the intermittency of the vomiting, and the presence of true diarrhea occasionally at the onset of a relapse.

It seems reasonable that we should recognize a class of cases of pyloric difficulty more or less intermittent in its symptoms, which is clearly not congenital.

In adults we see a prolonged series of attacks of so-called gastralgia, which may be fairly attributed to an irritated pylorus which is thrown into spasm whenever an unwonted chemical

or mechanical stimulus is applied, by reason of injudicious diet or indigestion.

This case illustrates the fact that pyloric spasm is a great factor in the production of emesis. Fermentation of the gastric contents with the resultant irritation of the pyloric mucous membrane, increases the spasm.

It is not rare that infants come under observation, who regurgitate so much of their food daily, that their growth is seriously impaired. Possibly many such patients suffer from a thickened pylorus.

Pfaundler holds that pyloric spasm is the principal cause of the symptoms in these cases. Thomson has advocated the theory that hypertrophy is always secondary to spasm. In these milder cases the spasmodic element certainly seems to be the principal factor.

Very interesting are those cases of persistent vomiting associated with hyperchlorhydria. Knopfelmacher has recently reported such a case. In his case the symptomatology was similar to that of pyloric obstruction. Gastric motor insufficiency was also demonstrated. But the diagnostic phenomenon was the presence of an excess of hydrochloric acid in the gastric juice. The infant recovered on whole milk, the casein of which neutralized the excessive acid.

A similar case occurred in the Bethesda Foundling Home, a brief history of which is as follows:

CASE IV.—Fannie. She was a healthy infant at birth. When several weeks old she began to vomit after every feeding. She was fed throughout on laboratory milk. At first she was put on a mixture containing proteids, 1; fat, 2; sugar 6 per cent. When about three months old the food was changed to proteids, 1.75; fat, 3.50; sugar, 7. The vomiting persisted for several months in spite of remedies and dietary changes. No enlargement of the stomach was demonstrated. The digested milk vomited invariably gave a very strong reaction of hydrochloric acid by Töpfer's test. A great excess of this acid was always present after nursing. The gastric contents were so irritating as to produce a severe dermatitis on the neck, which resisted all treatment until the vomiting ceased. The nutrition suffered for a long time. When the infant was nine months old she was placed on undiluted cow's milk and the vomiting almost completely ceased. She is now a healthy baby.

As in the case reported by Knopfelmacher the vomiting ceased on the administration of undiluted cow's milk.

Sometimes in cases which do not improve on raw milk, vomiting ceases when it is heated to 212°. Where whole milk is not borne at all, white of egg will sometimes answer the purpose.

These cases, from the prognostic and therapeutic point of view, must be sharply differentiated. Whenever persistent vomiting occurs, the presence or absence of hydrochlorhydria must be established. Patients with pyloric stenosis should be fed by whey mixtures, or fully peptonized milk, while pyloric spasm from an excess of hydrochloric acid, must be treated by an excess of protein to neutralize the acid. In the case of Baby L., at the age of five months the milk had to be peptonized for forty minutes. No wet nurse succeeded until one was found whose child was thirteen months old and whose milk showed 0.8 proteids.

Dr. Zahorsky furnished me with the history of the following case which illustrates what can be accomplished by careful dieting.

CASE V.—Baby F. Male. Age four months. Weighed about nine pounds at birth. The labor was normal. For the first two weeks the baby thrived. About the fifteenth or sixteenth day vomiting set in. This vomiting persisted and became daily more aggravated. The physician in charge prescribed various remedies with little effect. The milk was rejected from ten minutes to three hours after nursing. The bowels became obstinately constipated. The infant commenced to lose in weight, and at the end of four months weighed about eight pounds.

At varying intervals the vomiting would improve. The family physician put it on a variety of artificial foods and milk mixtures, but the vomiting grew worse. Finally he resorted to rectal feeding exclusively and under this method the infant seemed to do best.

The infant came under my care when four and one-half months old. Examination showed a poorly nourished child, weighing about seven pounds. The face was thin and the skin hung in folds; slept very well, cried little, and passed a considerable quantity of urine. No food had been given by the stomach for twelve hours previous, and during this time no vomiting had occurred. The parents had not noticed any bile in the vomitus

at any time. Examination of the mouth, lungs, heart, liver and spleen revealed nothing abnormal. Temperature of the body was 98°. The abdomen was flat, with slight bulging of the lower half, but as a nutrient clyster had been given a short time previously the swelling was attributed to this. When the lower bowel was emptied the swelling subsided. No tumor was palpable in the epigastrium, and no enlargement of the stomach was demonstrable, but later, when the stomach was distended, it was found that the greater curvature extended to the umbilicus. Moreover, it was observed that the upper half of the abdomen was relatively very prominent when the colon was empty. The diagnosis of hypertrophic pyloric stenosis seemed most reasonable.

The infant was given whey, which it took greedily. A little cream was added to this in one or two days, but the addition of cream caused distress, crying and vomiting. The vomitus had the odor of butyric acid. No excess of hydrochloric acid was present. The treatment consisted of rigidly maintaining the whey mixture, which could not form a coagulum in the stomach. As an antispasmodic atropin was given in doses of 1-1000th of a grain three times a day. This was given for the purpose of preventing pyloric spasm. The food given was pure whey, to which a little sugar was added. To make up the deficiency in fat, 15 drops of cod-liver oil were given after each meal.

The infant improved and commenced to gain in weight. In order to increase the strength of the food peptonized milk was mixed with the whey. The peptonized milk was gradually increased until the infant took equal parts of whey and peptonized milk representing a mixture of $2\frac{1}{2}$ proteids, 2 fat, and 7 per cent. sugar. The quantity given was at first 2 ozs., which was gradually increased to 4 ozs. Now, two months after beginning the treatment, the baby weighs twelve pounds, regurgitates very little food, seems happy, looks well, has normal passages and continues to thrive. About three weeks ago it passed through an attack of influenza with high fever, but it regained its weight rapidly when the fever subsided. Lavage of the stomach was not believed to be necessary in this case after the long absence of food from the stomach. The atropin was continued only for about two weeks.

PATHOGENESIS.—This is unknown. Cautley believes that

the condition is due to a congenital redundancy, or a prenatal overgrowth of muscular tissue.

Thomson believes that the trouble is a functional disturbance of the nervous system leading to a spasm and secondary hypertrophy of the pylorus. Pfaundler claims that the condition is primarily a spasm, and the hypertrophy is overestimated on account of the extreme contraction. As has been said, "It seems reasonable to combine these views so far as to believe that there is some congenital hyperplasia of the pyloric sphincter and that spasm supervenes upon this, and is largely responsible for the symptoms manifested.

TREATMENT.—Medicinal and dietetic measures should, in all cases, be first employed. The indications are as follows:

First.—The administration of some medicinal agent which shall overcome to a greater or less extent the violent contractions of the pylorus. Among the drugs to be recommended are belladonna, bromids and chloral. In case no. 1 chloral had only a temporary effect; atropin seemed very successful in case no. 1. Opiates should not be given, as the motor function of the stomach is thereby impaired.

Second.—The treatment of the secondary gastric irritation. This results from the stagnation of food and should be treated by washing out the stomach, and by giving the stomach rest; rectal feeding should, therefore, be resorted to from time to time and for twenty-four or more hours, nothing but water given by the stomach. When food by the mouth is again allowed, the stomach should be washed out occasionally to remove a possible residuum of undigested food.

Third.—The diet of the child should consist of food which forms no coagulum in the stomach. This point has not been sufficiently insisted upon. Milk or any food containing undigested casein will not answer, consequently the mother's milk is usually unsuitable, while the milk of a wet nurse in advanced lactation will succeed. Whey or peptonized milk or a mixture of both is generally the best food. The deficiency in fat should be supplied by cod-liver oil. A very small percentage of cream can be gradually added. If the coagulum formed by the cream causes distress or increases the vomiting, it must be completely predigested. A mixture of whey and predigested milk perfectly agreed with the patient last named. It is well to aid the motor power of the stomach by gravity, hence, after nursing

the infant should be placed on its right side. If the diet is perfectly fluid some nourishment will pass through the pyloric opening.

The end to be accomplished is hypertrophy of the gastric wall without dilatation, hence the quantity of food should not be large. Gaseous distension of the stomach should by all means be prevented. I cannot agree with Meltzer, who advocates giving large quantities of milk in the first stage. This must inevitably lead to ectasia. A stomach is not stronger when over distended.

When it is seen that the infant is failing in spite of rational treatment, surgical intervention must be advised.

As to the method of operation, we must leave the decision entirely with the surgeons, until sufficient material is furnished on which we can base some conclusions.

Schmidt has added a third case to the two successful operations recorded by Nicoll and Abel respectively. He performed a digital dilatation, but whether he opened the stomach, or simply invaginated the wall, as advised by Hahn, the reporter does not say.

1635 S. GRAND AVENUE.

Adenoids in Infancy.—Chappell (*The Laryngoscope*, September, 1901,) doubts the congenital theory of adenoids. He states the difficulties experienced in demonstrating the presence of adenoids in very young infants, and says that the following conditions may cause respiratory obstruction simulating that caused by adenoids in the nasopharynx in infants under six months: Lymphatism and lithemia, syphilitic or gonorrhoeic rhinitis, congenital atelectasis, digestive disturbances, congenital highly arched palate, very small or occluded nostril or nasal passages, small post-nasal spaces, malformations of the soft palate and hypertrophy of the tongue. These are considered separately. In an examination of 437 infants under three years, 45 were found under seven months old who had some nasal obstruction, but in no child under three months was the obstruction due to lymphoid hypertrophy in the nasopharynx. Of this number 87 had adenoids alone, 80 adenoids and enlarged tonsils, 44 hypertrophied tonsils, without adenoids, 50 hypertrophic rhinitis, 21 foreign bodies, 20 eczema naris and folliculitis alae nasi, 13 specific rhinitis and 4 deflected septa.—*American Med.*

THE LEUCOCYTE COUNT IN THE DIAGNOSIS OF DISEASES OF CHILDREN.*

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In this thesis the writer desires to collate the records of various observers who have made leucocyte counts in diseases of children, publish his own observations, and point out the value of the estimation of the white blood cells in diseases of early life.

Before turning to the pathological phases of the subject, it is necessary to know the limits and variations of the leucocyte counts of healthy infants and children.

Infants at birth have a high and variable leucocyte count, ranging from 14,000 to 27,000 cells. Gundobin, 19,600; Rieder, 14,200 to 27,400; Oransky, 16,980; Cadet (Stengel and White), 19,480; Elder and Hutchinson (Stengel and White), 17,884. On the second day of life the count is higher than at birth. Gundobin, 23,000; Woino-Oransky, 31,680. A decrease from the high leucocytosis of the first and second days occurs on the third and fourth days. Rieder, 1 case, third day, 8,700; Reider, 3 cases, fourth day, 13,600; Hayem, third to fourth day, 7,000; Kruger, after third day, 15,000.

After the fourth day with the increase in body weight the leucocyte count shows a moderate increase to 12,000 to 14,000 cells, which is maintained to some degree throughout the first year of life. Rieder, 12,400, to 14,800; Schiff, fourth to eighteenth day, 12,000 to 13,000. After the first twenty days of life there are few records upon the leucocyte count in healthy infants. Jaffe counted 22 cases under ten months and found an average of 13,500.

Hayem (Ewing) states that the count at fifteen months in healthy infants is about 10,000 cells. It is probable that in infants in health, a mild leucocytosis occurs during the first year of life which is somewhat diminished during the second year of

* Read before the Minnesota Academy of Medicine.

life. But beyond the age of two years in healthy children the leucocyte count is not different from that of adults.

Of the physiological processes, that of digestion plays a prominent part in the rise and fall of the white blood cells. In all persons, old and young, there is a rise in the number of leucocytes following a meal, beginning within an hour after ingestion, and reaching its maximum within from three to four hours. In young infants the digestion leucocytosis is very marked, and must always be borne in mind, so that, in making leucocyte counts, a time must be selected some hours after a meal.

Of the other so-called physiological leucocytoses, namely, those following cold baths, exercise and massage, etc., no records are at hand to determine their effect upon the leucocyte count in children.

It is plain that the variability in the leucocyte count in the new-born and in the first year of life is such that in the diagnosis of diseases of this early age it cannot be relied upon except in those infections accompanied with a low leucocyte count.

From one to two years of age the count may be of considerable value if one is careful to exclude the leucocytosis of digestion. Even at this age, however, the chief value in the procedure must be to assist in the identification of such diseases as are characterized by a diminution rather than an increase in the leucocytes of the circulating blood. This group of diseases includes typhoid fever, la grippe, measles, malarial fever and miliary tuberculosis, and perhaps tuberculous meningitis.

The writer, however, hopes, to be able to show that beyond two years of age the leucocyte count in diseases of children is as invariable and as fixed as in diseases of adult life and can be made as helpful in the diagnosis of the diseases of childhood as it is in diseases of adults. No effort will be made in the following study to arrange the diseases in any special classification. No cases over fourteen years of age are considered.

TYPHOID FEVER.—Blood counts in 22 cases of typhoid fever in children were studied. Of these 11 are reported by the writer. Of the 22 cases 18 are uncomplicated, and only 1 case, no. 3, had more than 10,000 cells, this being a count made late in convalescence. Early in the disease the count was 4,207 in this case. In the other 17 cases, the count was normal or below.

The age of the child is no exception to the rule. Case no. 15, child of two and a half years, counted 5,000 cells; case 11,

four years, 5,000 cells; case 16, five years, 6,000 cells; cases 5, 7, 10 and 12, all six years, counted 7,000, 2,000, 6,200 and 4,200, respectively.

In a strikingly large number of cases there is a leucopenia, even early in the course of the disease. Case 14 counted 3,300 on the second day; case 12, 4,200 in the first week; case 10, 6,200 in the first week; case 3, 4,207 in the early stage.

Two cases were counted during a relapse, case 2 showing 6,948 and case 4, 9,840 cells. The counts in a relapse follow the same rule as in the original attack. Two were counted during convalescence, case 3 counting 12,320, and case 5, 8,342.

Six counts were made in 5 cases during the first week of the disease with an average of 4,701 cells, a distinct leucopenia. Ten counts were made in 8 cases in the second week with an average of 6,046 cells. In children, therefore, the count seems to be lower during the first week than during the second week of the disease. This is contrary to Thayer's figures in adults. His average for the first week was 6,984, for the second week 6,468.

Of the 4 complicated cases, 3 showed a marked leucocytosis, counting 27,636, 20,928 and 20,800, respectively.

From these figures we are justified in concluding that in typhoid fever in children, the low leucocyte count is as constant and fixed as in adults and that complications cause a leucocytosis. The value of a leucocyte count in typhoid fever in children is first, as an aid in establishing the diagnosis; second, as a means of determining the presence of complications. If in a case of suspected typhoid fever in a child the leucocyte count is over 10,000 cells, the diagnosis of uncomplicated typhoid fever is not to be entertained. The exceptions to this rule are rare. If in a case of certain typhoid fever in a child the leucocyte count rises above 10,000 cells, a complication is to be looked for whether the symptoms indicate it or not. But it is not in the plain cases of typhoid fever that the diagnostician needs the greatest help. A study of the clinical symptoms will often narrow the diagnosis to a choice of one or two diseases. Is the case one of typhoid fever or meningitis? One of typhoid fever or osteomyelitis? One of typhoid fever or appendicitis? One of typhoid fever or some septic infection? It is in these dilemmas that the leucocyte count holds many times the key to the correct diagnosis. For all of these diseases have an increased white

blood count, while uncomplicated typhoid fever does not. As an illustration of the value of this procedure as an aid in diagnosis, take a case in the writer's series.

Miss F., fourteen years. Seen with Dr. C. H. Hunter. History of five days' pain in right lower abdomen with vomiting, constipation and fever (103°). Physical examination; abdomen distended; tenderness and marked resistance in the right lower abdomen. Clinical diagnosis; appendicitis with forming abscess or necrosis. Operation advised. White blood count, 3,300 cells. Diagnosis with the aid of white count, a non-suppurative lesion in the abdomen, probably typhoid fever. Surgeon operated. There was no pus. A normal appendix was removed. Patient continued in a course of fever which lasted three weeks, with rose spots, enlarged spleen and Widal reaction and finally recovered. In this case the disease was from the outset a case of typhoid fever simulating appendicitis which the blood count diagnosed correctly.

A second case illustrating the value of the count as a diagnostic aid might be given. Willie W. Boy, twelve years. Well till three weeks ago, when he fell on a stone sidewalk, striking his head. Came home in a dazed condition. Complained of headache more or less ever since. When seen the boy was dull and stupid. Had vomited once or twice. Temperature 104° ; pulse 106, full and bounding. No diarrhea, no nose bleed, no spots. Slept poorly and talked in his sleep. Lungs, heart and abdomen normal. Diagnosis: Meningitis or typhoid fever, or? White blood count 8,000 cells. Diagnosis with the aid of the white count, excludes meningitis and points toward some disease without leucocytosis. Boy later developed rose spots and diarrhea, his blood gave the Widal reaction and he ran a typical typhoid course.

Two complications met with in typhoid fever, namely, hemorrhage and perforation, are of special interest to every diagnostician. As no case in this series was so complicated, the question as to whether either influences the white count cannot be answered from the evidence furnished by these cases.

In typhoid fever in adults hemorrhage and perforation are often followed by a prompt rise in the number of leucocytes in the circulating blood. There are, however, numerous exceptions to the rule, and practically the knowledge furnished by the white count in these conditions is this: if in a case of typhoid

fever, symptoms pointing to perforation or hemorrhage are observed, a rise in the leucocytes of the blood strengthens the evidence that perforation or hemorrhage exists.

APPENDICITIS.—There are 13 cases of appendicitis recorded in my series, 10 being from the writer's records. Of these 13, only 2 had a count at the beginning of the attack of 10,000 cells or less. All the rest showed a marked leucocytosis, ranging from 11,000 to 36,000 cells. We are justified, therefore, in concluding that appendicitis in children as in adults is a disease usually accompanied by a well-marked leucocytosis. The leucocytosis was usually prompt in its rise. Cases 6 and 13 counted on the first day 21,000 and 30,000 cells respectively. Cases 4, 6, 12 and 13 counted on the second day 16,000, 19,000, 11,300 and 18,300 cells respectively. The leucocytosis continued during the severity of the attack. Cases 4, 10 and 13 illustrate this and dropped with a fall in the severity of the inflammation.

The 2 cases in which the count did not exceed the normal limits, cases nos. 11 and 5, were both mild in their symptoms and were recovered from in short order.

In 3 of the cases pus was found at operation. These were nos. 7, 8 and 9, and counted 22,600, 36,000 and 16,000 respectively. The question here arises, is there a count of leucocytes in appendicitis in children which always indicates the presence of pus? The number of cases bearing on this point in these records is not large enough to give us definite information, but there are 4 cases, nos. 4, 6, 10 and 13, all of which counted over 20,000 and one 30,000 cells sometime during the course of the disease and all recovered from the attack without operation. It is probable that no definite limit of count can be named beyond which either in adults or children we can say pus is present in or around the appendix.

In 1 of the cases, no. 3, perforation was encountered at operation. The count in this instance was 28,000 cells. This case brings up another vital question, can the leucocyte count give evidence of an approaching perforation or of a perforation after it has occurred? No cases in this series bear on this point, but from a study of adult cases made by the writer, the answer must be in the negative (See *Medical Dial*, September, 1899.) The same is probably true in children.

What, then, is the value of the leucocyte count in appendicitis in children? *First*, it is an aid in the diagnosis of the disease.

Attacks of abdominal pain from renal calculus, gall stones, acute intestinal obstruction and typhoid fever may all simulate an acute attack of appendicitis in children and all of these diseases usually have a normal or diminished count. On the other hand, acute gastritis, acute nephritis, acute entero colitis, all cause leucocytosis and could not be so differentiated.

Second.—When the clinical symptoms are mystifying or give no clue as to the course the disease is pursuing, the leucocyte count is often of valuable assistance in following the course of the inflammation. As an illustration, take a case in the author's series.

Child T., girl, six years. Seized with pain in the right lower abdomen with vomiting, constipation and temperature of 101°. On the palpation of the right lower abdomen, child cries with pain. All other symptoms negative.

DATE.	WHITE COUNT.	CLINICAL NOTES.
January 15, P.M.,	30,000	
" 16, A.M.,	18,300	No change in symptoms; temperature, 101°; bowels move.
" 16, P.M.,	14,000	Vomiting ceased.
" 17, A.M.,	14,000	Child better.
" 18, A.M.,	8,000	Child much better. Pain in right side gone.
" 21, A.M.,	12,000	Convalescent.

Another case is No. 4. Boy H.

DATE.	WHITE COUNT.	CLINICAL NOTES.
October 10,	16,000	Vomiting, obstipation.
" 11, A.M.,	20,000	No change.
" 11, P.M.,	22,000	Symptoms still severe.
" 12, A.M.,	21,600	No change in symptoms.
" 12, P.M.,	16,000	Improvement in symptoms.
" 14, A.M.,	9,500	Recovery.

Other illustrations are cases 10 and 12. We may, therefore, conclude that the leucocyte count is of value in following the course of the disease. A rising leucocytosis means a spreading inflammation; a falling leucocytosis a receding process.

It is important in this connection to bear in mind that in adults a series of cases of general septic peritonitis, complicating appendicitis, have been encountered in which the leucocyte count was normal or below normal. These cases may also exist in children, and no conclusions concerning the severity of a given case of appendicitis should be drawn from a white

count unless successive counts have been made from the onset of the disease.

LOBAR PNEUMONIA.—There are 12 cases of lobar pneumonia in the series, ranging in age from eighteen months to nine years. Of these the writer reports 5 cases. All 12 cases show a pronounced leucocytosis. The lowest count is 20,600, the highest 87,300. The younger the child the more pronounced does the leucocytosis appear to be. An average of the cases under five years of age gives 41,090 cells. While for those cases over five years the average count is 26,800 cells. Two cases proved fatal; case no. 2, counting 68,000 and 87,200; and case no. 5 counting 32,162. Both are reported by Stengel and White.

Case no. 4 was complicated by pericarditis and counted 34,688. The number of complicated cases is not sufficient to draw conclusions as to whether the count is higher in complicated as distinguished from uncomplicated cases, or in double as compared with one-sided pneumonias.

The symptoms of lobar pneumonia are sometimes masqued and typhoid fever, malaria or la grippe may be suspected. Here, a high leucocytosis rules out these three common infections and points toward lobar pneumonia. Sometimes in children the symptoms at onset of lobar pneumonia simulate cerebrospinal meningitis or some abdominal lesion as appendicitis. The leucocyte count is of no assistance in differentiating lobar pneumonia from either of these diseases. An illustration of the value of the count in the diagnosis of lobar pneumonia in a child where the symptoms were puzzling is the following: Boy A., seven years. Complains of pain in the stomach, loss of appetite, diarrhea, cough and vomiting. Symptoms began two days ago. Temperature 105°. Pulse 130. Heart, lungs and abdomen negative. Albumin in the urine. No casts. Diagnosis (?) White blood count 23,000. The high leucocyte count ruled out la grippe and typhoid and pointed to some disease with a high leucocytosis, possibly pneumonia. With this knowledge in mind on the following day the lungs were carefully gone over a second time and a consolidated area the size of an orange was discovered in the base of the right lung posteriorly. One day later the whole lobe of the right lung was involved.

BRONCHOPNEUMONIA.—The series includes only 3 cases of bronchopneumonia in which a white blood count had been

made. All 3 exhibit a well-marked leucocytosis and 1, case 2, in a child one and one-half years old, ending in death, counted 50,300 cells. In the 2 other cases the count was lower than in any of the cases of lobar pneumonia counted at the onset of the attack. It is probable, therefore, that while bronchopneumonia in children is a disease with leucocytosis, the rise in white cells is not as pronounced as in lobar pneumonia.

MENINGITIS.—Five cases of meningitis are recorded in the series; all show a pronounced leucocytosis, ranging from 14,200 to 40,600 cells. We may, therefore, conclude that in children as in adults meningitis is a disease characterized by a well-marked leucocytosis, which appears early in the disease and continues until death. Complications do not modify it. The value of the leucocyte count in meningitis is as an aid in the diagnosis of the disease. In children the diseases which simulate meningitis are pneumonia, brain tumor, typhoid fever and hysteria. The onset of a lobar pneumonia in a child often resembles closely that of meningitis, but here the count is of no differential diagnostic importance, both diseases being characterized by a well-marked leucocytosis.

In the diagnosis between meningitis and uncomplicated typhoid fever, the count is almost, if not absolutely, diagnostic, the latter disease having a normal or diminished white blood count.

In the diagnosis between meningitis and brain tumor in children, enough counts are not on record to determine the real value of the leucocyte count, but it is probable that here, too, the knowledge furnished by the blood examination is absolutely diagnostic. (See brain tumor.)

Between meningitis and hysteria the count is also probably diagnostic. The writer has seen 2 cases, 1 in a girl of fourteen years, another in a young woman of twenty-three, in which a number of good consultants were puzzled for days over a diagnosis between hysteria and meningitis. In one the leucocyte count was 6,300, in the other 9,000. Both cases finally manifested symptoms which ruled out meningitis and confirmed the diagnosis toward which the blood examination pointed at the start.

BRAIN LESIONS OTHER THAN MENINGITIS.—(a) Abscess of the brain. The writer has 1 case to record. Boy M., twelve years of age. Seen through the kindness of Dr. C. H. Hunter.

Counted on the seventh day of severe symptoms and previous to operation 19,000 cells. Skull trephined and 20 c.c. of pus evacuated.

Brain abscess may be confounded with brain tumor or meningitis. Between brain abscess and meningitis the white count will be of no assistance in diagnosis, but between brain abscess and brain tumor the count would be of diagnostic value, especially if made early in the disease.

(b) Brain tumor. One case with count and autopsy record confirming the diagnosis can be reported by the writer.

Lizzie H., thirteen years of age. Counted in the second week of the onset of severe symptoms, 5,500 cells. Child died two months later and a sarcoma of left optic thalamus was found at autopsy.

In the early stage of the disease this case was diagnosed as a possible meningitis, a mistake which would not have been made had the evidence furnished by the white count been heeded.

The question of the value of the white count in the differential diagnosis between tubercular and non-tubercular forms of meningitis arises. As the writer has no cases of tubercular meningitis in children to report and can find none in the literature, and as the counts made in adults with tubercular meningitis are conflicting, some writers, Limbeck, Pick, Rieder and others finding no leucocytosis, while Cabot and Ziemke report cases with leucocytosis, this part of the subject must be left for future study to decide. Ewing states, page 302, that he has encountered leucocytoses in tubercular meningitis, but that a terminal pneumonia in each instance was found at autopsy. This may serve to explain the conflicting records upon the white blood counts in tubercular meningitis.

LA GRIPPE.—Two cases of la grippe in children have been counted by the writer. One, a baby of twenty months, counting on the third day of the disease 5,300 cells. The other, a girl of six years, counted on the fourth day 6,000 cells. Both recovered without complications. It is probable, therefore, that the uncomplicated disease in children is characterized by a normal or reduced count the same as in adults. The leucocyte count will therefore be of value in differentiating influenza from meningitis, which in children it sometimes simulates. Also in establishing the presence of a complication, such, for example,

as lobar pneumonia, which is accompanied by a rise in the white count.

DIPHTHERIA.—It has been demonstrated that in children and adults as well diphtheria is accompanied by a leucocytosis usually well marked, 25,000 to 30,000 cells in severe cases and slight in mild cases.

The writer has counted 4 cases of diphtheria in children, all mild in character. Alma B., eight years, diphtheria by culture, 10,000; Edith E., twelve years, diphtheria by culture, 9,600; boy I., five years, diphtheria by culture, 8,600; Minnie L., five years, convalescent from diphtheria, 6,600.

The leucocyte count is of little practical value in the diagnosis of diphtheria in children. Acute tonsillitis, with which it is most often confounded, is accompanied by a leucocytosis. So, also, is scarlet fever, the throat complications of which often resemble diphtheria.

MEASLES.—The work of Rieder, Pick, Felsenthal, Pee and others has demonstrated that in measles the leucocyte count is normal or below normal during the entire course of the disease. Complications, such as bronchopneumonia, severe bronchitis and otitis media cause a leucocytosis in some cases. In a boy, ten years of age, who maintained a rise in temperature one week after the measles rash had disappeared the writer counted 25,000 cells. Two days later pus was discharged from the left ear.

The value of the white blood count in the diagnosis of measles in children is of doubtful value.

German measles, according to Cabot, shows no leucocytosis. Mild scarlatina, likewise, according to Turk, shows nearly a normal number of leucocytes. If the infection is a severe one and the diagnosis lies between scarlet fever and measles, leucocytosis would point to the former, a normal count to the latter, disease. A leucocytosis developing in a case of measles points to some complication.

SCARLET FEVER.—The leucocyte count in this disease in its various stages has been worked out by Hayem, Rieder, Kotschetkoff and others. Felsenthal examined 6 cases in children, showing a leucocytosis of from 18,000 to 30,000 cells. The leucocytosis begins a day or so before the rash appears, reaches its height about the time of the full development of the exanthem, and falls with the fading of the rash, or may persist some days

longer. Complications have little effect upon the leucocytosis. In cases of doubt, the leucocyte count will differentiate between scarlet fever and measles in many instances.

In the only case of scarlet fever counted by the writer, the leucocytes numbered 11,300 cells on the tenth day of the disease. This was in a boy of seven years of age.

VARIOLA.—From the studies of R. Pick the leucocyte count in the various stages of variola has been determined. Previous to the formation of the vesicles, no leucocytosis occurs; with the appearance of the vesicles the leucocyte count rises and reaches its height as the exudate becomes purulent. In very mild cases no leucocytosis occurred throughout the disease. It is probable that these statements apply to the leucocyte count in children as well as in adults. The value of the leucocyte count in the diagnosis of variola is not yet fully determined. The initial symptoms of variola sometimes simulate cerebrospinal meningitis and here the white count would be of great diagnostic importance.

The initial rash of variola sometimes resembles that of scarlet fever and in such cases the white count might give valuable differential diagnostic information early in the disease.

ACUTE ARTICULAR RHEUMATISM.—Four cases of this disease are included in the series, and 3 show pronounced leucocytosis while 1 does not. These counts are not as high as those made in adults by Hayem and Cabot, but in general the counts in children and adults are practically alike, some showing leucocytosis while others do not. The knowledge furnished by the white count in the diagnosis of acute articular rheumatism is of little practical value.

MISCELLANEOUS SEPTIC INFECTIONS.—Under this heading has been included counts made by the writer in children with various septic infections.

1. Boy B., 10 years,	Abscess of neck 2 days' standing.	15000 pus evacuated.
2. Girl C., 12 years,	Abscess in groin 4 days' standing.	21000 pus evacuated.
3. Baby L., 9 months,	Abscess in groin 1 month's standing.	12600 pus evacuated.
4. Boy R., 14 years,	Otitis media,	25600 pus discharged.
5. Girl H., 2 years,	Pus in urine	16600

In all these cases will be noted a well-marked leucocytosis which conforms to the rule of leucocyte counts met with in

septic infections in adults. Septic infections in children are sometimes easy and sometimes difficult to detect. One can go so far astray in his diagnosis when dealing with septic infections in a sick child, that it is oftentimes a great help to have some "pointing finger," such as the white count, to direct him to a quick solution of a difficult diagnostic problem.

In case 4 the development of the otitis media was so insidious that for two days the diagnosis of typhoid fever was considered until a white count ruled out uncomplicated typhoid and pointed the way to the right diagnosis.

In case 5 the attacks of high fever and chills were absolutely inexplicable to the diagnostician in charge until a white blood count suggested the possibility of a septic infection which led to the finding of pus in the urine.

From what has been here written it must seem clear that the leucocyte count in sick children from two years upward is as invariable and fixed as in adults suffering with similar diseases.

The knowledge which it furnishes is, therefore, as reliable, and the procedure should be more generally employed by clinicians doing this class of work.

The leucocyte count possesses value in the whole realm of diagnostic medicine, and especially in diseases of children, because it furnishes knowledge supplied by a scientific instrument which is unprejudiced and unbiased in its findings and leaves out of reckoning that subjective element in diagnosis which is so mystifying to the clinician.

TYPHOID FEVER WITHOUT COMPLICATIONS.

CASE.	NAME.	AGE.	WEEK OF DISEASE.	WHITE COUNT.	REPORTER.	REMARKS.
1	—	12 yrs.	—	6966	Stengel & White	
2	—	12 "	—	6948 relapse	" "	
3	—	11 "	early stage	(a) 4207 (b) 12320 (convales.)	" "	
4	—	—	late stage	(a) 6880 (b) 9840 after relapse	" "	
5	—	6 "	2d week	(a) 7000 (b) 8342 (convales.)	" "	
6	—	—	—	3000	Stowell	
7	—	6 "	—	2000	"	
8	Miss F.	13 "	1st week	3300	Head	Recovery
9	Nellie W.	8 "	2d "	(a) 8000 (b) 5600	" "	
10	Edmund F.	6 "	1st "	6200	" "	
11	Reed, G.	4 "	2d "	5000	" "	

CASE.	NAME.	AGE.	Wk. OF DIS.	WHITE COUNT.	HEAD	RECOVERY
12	Boy B.	6 yrs.	1st week	4200		
13	Oswald, B.	14	2d "	(a) 7600 (b) 6300	"	"
14	Norton, J.	7	" 1st "	3300 1st "	"	"
15	Baby Kr.	2½	" 2d "	7000 5000	"	"
16	Oscar Kr.	5	" 2d "	6000	"	"
17	Boy H.	12	" 2d "	7660	"	"
18	Henry R.	12	" 2d "	2300	"	"

TYPHOID FEVER WITH COMPLICATIONS.

CASE.	NAME.	AGE.	Wk. OF DIS.	WHITE COUNT.	COMPLICATIONS.	REPORTER.
1	—	8 yrs.	—	27636	Intense bron- chitis, with blood tinged sputum.	Stengel & White
2	—	—	—	20928	Bronchopneumonia	" "
3	—	10 yrs.	—	9206	Excessive bronchitis	" "
4	—	8 "	—	20800	Pertussis & varicella	" "

MENINGITIS.

CASE.	NAME.	AGE.	DAY OF DISEASE.	WHITE COUNT.	REPORTER.
1	—	7 yrs.	—	16000	Cabot
2	—	2 "	—	14200	"
3	Boy R.	10 "	4th day	40600	Head
4	Girl H.	10 "	7th "	18000	"
5	Girl P.	5 "	5th "	23000	"

LOBAR PNEUMONIA.

CASE.	NAME.	AGE.	DAY OF COUNT.	LUNG INVOLVED.	WHITE COUNT.	REPORTER.	REMARKS.
1	Helen D.	9 yrs.	—	—	29200	Stengel & White	—
2	Lazier T.	2½ "	—	Right lung	(a) 68000 (b) 87200	"	"
3	Sarah M.	4 "	—	—	(a) 27824 (b) 35200	"	death
4	Wm. M.	4½ "	—	—	34688	"	pericarditis & peritonitis
5	Annie S.	1½ "	—	—	32162	"	death
6	Josephine	6 "	—	Right lung	20400	"	
7	Jacob H.	5½ "	—	Apex of right lung	50917	"	
8	Girl L.	4 "	7th day	Base of right lung	29000	Head	recovery
9	Boy A.	6 "	—	Base of left lung	23000	"	"
10	Earnest V.	7 "	3d day	Base of right lung	20600	"	"
			4th "		11600	"	"
			later		10700	"	"
11	Boy P.	8 "	5th day	—	27000	"	"
12	Boy C.	8 "	4th "	Left lung	17600	"	"

BRONCHOPNEUMONIA.

CASE.	NAME.	AGE.	DAY OF DISEASE.	WHITE COUNT.	REPORTER.
1	—	4 yrs.	—	14169	Stengel and White
2	Baby R.	1½ "	4th day	50300	Head
3	Girl K.	12 "	7th "	16600	"

ACUTE ARTICULAR RHEUMATISM.

CASE.	NAME.	AGE.	DAY OF DISEASE.	WHITE COUNT.	REPORTER.
1	—	9 yrs.	—	14386	Cabot
2	—	9 "	—	14050	"
3	Girl M.	16 "	—	9200	Head
4	Fred. W.	8 "	—	16000	"

APPENDICITIS.

CASE.	NAME.	AGE.	DAY OF COUNT.	WHITE COUNT.	REPORTER.	REMARKS.
1	—	14 yrs.	—	18000	Cabot	—
2	—	12 "	—	10400	"	
3	—	7 "	11th day	28000	Russell	operation; perforation; recovery
4	Boy H.	14 "	2d "	16000	Head	
			3d "	A.M. 20000	"	
				P.M. 22000	"	
			4th "	A.M. 21600	"	
				P.M. 16000	"	
			5th "	9500	"	recovery
5	Lon. B.	12 "	—	7000	"	mild attack; recovery
6	Girl T.	5 "	1st day	21000	"	
			2d "	19000	"	recovery*—
7	Mary W.	8 "	3d "	22600	"	operation; pus evacuated
8	Boy A.	13 "	10th "	36000	"	operation; abscess recovery
9	Boy D.	10 "	7th "	16000	"	operation; abscess; death
10	Boy C.	11 "	5th "	19000	"	
			6th "	14000	"	
			7th "	22000	"	
			8th "	14000	"	recovery
11	Jennie Mc.	14 "	—	10000	"	"
12	Boy B.	8 "	2d day	11300	"	"
			3d "	10000	"	
13	Ruth T.	6 "	1st "	30000	"	
			2d "	A.M. 18300	"	
				P.M. 14000	"	
			3d "	14000	"	
			4th "	8000	"	
			7th "	12000	"	
			16th "	3000	"	"

*Recovery from attack.

ENLARGED BRONCHIAL LYMPH NODES IN CHILDREN.*

BY ALFRED FRIEDLANDER, M.D.,

Cincinnati, O.

The lymph nodes of the body constitute an apparatus, not only for filtration, but also for rendering innocuous the most varied kinds of virus. We find that these lymph nodes are continually called upon to resist the further spread of all the local irritations and inflammations to which the organism is subjected. And further, in the discharge of this function, the lymph nodes themselves react, by irritation or inflammation, as in the case of an infected finger, and there ensues a lymphangitis and adenitis. If the original infection be not too intense, the filter system holds the poison localized, and the general infection occurs *only* when this particular filter is no longer able to absorb, *i.e.*, to render innocuous, the bacterial toxins. Thus the lymph nodes along the respiratory tract act as a protective wall against the further penetration of all kinds of matter, including microorganisms.¹

During early life growth is especially active, and at the same time the resistive powers of the organism are but poorly developed. The various mucous membranes react much more easily to irritation, with resulting inflammation, than they do in later life. As a consequence, the lymphatic system, in other words the filter system, is necessarily much more active. The lymph nodes are much more prone at this time to take on inflammation, to harbor various pathologic microorganisms.

Added to this, there is the disposition, often hereditary, not infrequently aggravated by faulty conditions of development, hygiene and sanitation, to chronic inflammation of mucous membranes, skin and bone, associated with congestion and hyperplasia of the lymphatics and lymph nodes.² This is the condition to which the name "lymphatism," for want of a better, has been given.

The relation of this diathesis to tuberculosis is still a moot point. It would appear, however, that one must admit that a

* Read before the Academy of Medicine of Cincinnati, O., March 17, 1902.

general non-specific lymphadenitis is frequently found. On the other hand, the existence of this hyperplasia of the lymphoid tissue certainly favors the development of a tuberculosis, for it is certainly doubtful whether the tubercle bacillus can flourish in perfectly healthy tissues. This chronic hyperplasia may aptly be regarded as a preparation of the soil whereon the seed of tuberculosis may grow and flourish. The public mind, professional as well as lay, is to-day much exercised, and properly so, concerning the contagiousness of tuberculosis. But we ought not to forget that heredity, in the form of a transmitted diathesis, in fact in the form of the particular condition under discussion, is an etiologic factor of prime importance.

The lymph nodes in relation with the trachea and large bronchi may be divided into three groups: (1) The tracheal, on either side of the wind-pipe; (2) The tracheobronchial, lying in the angle of bifurcation and along the main bronchi; (3) The peribronchial, in contact with the bronchi to their fourth subdivision. These groups form one system massed about the end of the trachea, corresponding with the third dorsal vertebra behind, and with the junction of the manubrium and gladiolus in front. The deep lymphatics of the neck lying both in front and back of the carotid sheath are continuous with those about the bifurcation of the trachea and with the subclavicular nodes.³ Reference will be made to this important fact later. The frequency with which these lymph nodes are affected by tuberculosis is too well known to need comment. In 125 autopsies made at New York Foundling Hospital, Northrup found the bronchial lymph nodes tuberculous in every case irrespective of the cause of death. In at least four-fifths of all cases of tuberculosis in children, the bronchial lymph nodes are affected, and in many cases it is certain that this adenitis is the primary lesion.⁴ Steiner and Neuritter⁵ showed that in 302 autopsies in tuberculous children the bronchial lymph nodes were affected 275 times (91 per cent.).

There are two diseases of childhood in which there is always great irritation of the bronchial mucosa, and consequently, for reasons before stated, an invariable inflammation of the bronchial lymph nodes. These diseases are measles and whooping cough. It is probable that in a great majority of cases, influenza in children also excites an adenitis of the bronchial lymph nodes,

seeing that, in children at least, involvement of the respiratory tract is almost universal in this disease.

If we consider that the morbidity of measles is probably greater than that of any other infectious disease and if we add to this the enormous frequency of occurrence of pertussis and influenza, the statement that almost every child at some time or other exhibits a bronchial adenitis, does not seem exaggerated. Of course, in many cases this adenitis recedes with the disappearance of its cause. The strong and otherwise healthy child recovers from its acute infection, and is to all intents perfectly well again. But if the child for any reason be below par in development, or in nutrition, if in other words its vitality be deficient, the adenitis persists for a greater or less time. And herein lies the danger.

One of its most frequent means of entrance of the tubercle bacillus to the human body is by inhalation. Given a child with a bronchial adenitis, with consequent lowered resistance, and with, in so many cases, an hereditary tubercular diathesis, and the result can hardly be in doubt. In this way can be explained the enormous frequency of this form of tuberculous adenitis in children.

It is not to be supposed, however, that this is the only method of tubercular infection of the bronchial nodes. Enlargement of the cervical lymph nodes is a frequent concomitant of disease of the nasopharynx. Where we have adenoid vegetations and enlarged tonsils, cervical adenitis is common. At first simple, this often subsequently becomes a tuberculous adenitis. Then by extension in continuity the bronchial nodes may become affected. So too we may have infection traveling upward from the mesenteric lymph nodes. The relative frequency of primary tuberculous involvement of the mesenteric nodes may still justly be open to question. There can be no doubt, however, that once such infection is present, secondary involvement of the bronchial nodes by extension may readily occur.

The etiology is thus very clear. With the casual factors of a disease so very frequently present, with the conditions for its development so generally favorable, the condition itself must necessarily be classed among the diseases most frequent in childhood. And yet it must be admitted that the existence of enlargement, although strongly suspected can, in many cases, *not* be demonstrated. Indeed, it is probably not an exaggeration to

say that its diagnosis is more often overlooked than made. The reasons for this are not hard to find.

THE SYMPTOMS are often very vague; the physical signs, especially in the early stages, either negative or indefinite. In fact, there are not wanting observers of repute, men of large clinical experience, who question whether the diagnosis of this condition as an entity, can be made. Thus Henoch⁶ insists that "in the great majority" of these cases the diagnosis cannot be made *intra vitam*. At autopsies, he frequently found "voluminous packets of caseous bronchial glands whose existence could not have been inferred from a single symptom during life."

Yet there are several symptoms, in some cases definite physical signs, whose presence justifies the making of a diagnosis on the grounds of probability. In addition to which, in more advanced cases, the diagnosis can be made with practical certainty. But even if it be admitted that the diagnosis cannot be established more definitely than as a probability, it is worth while to study the condition carefully. For on the one hand, as has been stated, we know as a result of post mortem findings that the condition must be enormously common, and on the other hand, there is hardly a phase of the whole question of tuberculosis in childhood where therapeutic inquiry affords more favorable promise.

One of the early symptoms suggestive of enlarged bronchial lymph nodes is a peculiar paroxysmal cough. This cough resembles that of pertussis, except that there is no crowing inspiration. It is often very violent and exhausting, and the paroxysm may end in vomiting. The attacks may be more frequent at night, indeed there are often nocturnal attacks closely simulating asthma. Dyspnea on even slight exertion, without demonstrable cardiac lesion, is frequently present. The child is anemic, and anemia in childhood without discoverable cause, is always suspicious. The child is apt to be listless with a disinclination to play. The sleep is restless and the child may be wakened several times during the night by the cough and resulting dyspnea. The appetite is capricious, the child is not well nourished. There may or may not be slight afternoon rise of temperature. Not infrequently the child is hoarse all the time. Physical examination is usually absolutely negative at this early stage. This symptom complex is seen very frequently after an

attack of measles or whooping cough, particularly in so-called delicate children. It may also follow influenza, though it is not to be forgotten that during and after this disease we sometimes see paroxysmal cough to which the name "pertussoid" has been given.⁷

In other cases the symptoms develop gradually, with remissions and exacerbations, but always without demonstrable physical signs until the process is well advanced.

Broadly stated, the signs of enlarged bronchial lymph nodes are always those of compression. The lymph nodes lie in most intimate relation to trachea, bronchi, lungs, vessels and nerves. They are enclosed within the comparatively non-yielding thorax, and in the narrowest part of the thorax. When, therefore, they attain any abnormally large size, it is easy to see how they may give rise to pressure signs upon the surrounding structures. It is, of course, a fact that they sometimes do become enormously enlarged without giving rise to such symptoms. As before noted, the existence of even greatly enlarged lymph nodes may in certain cases only be discovered at the autopsy table.

In many cases, however, the physical examination will be of great value in determining the existence of enlarged bronchial lymph nodes. Inspection and palpation may afford suggestive information. It has been stated before that the bronchial lymph nodes are in direct communication with the cervical nodes. It is therefore natural that the latter lymph nodes should be enlarged when the former are. As a matter of fact we frequently find this to be the case. It would, of course, be absolutely wrong to infer that the bronchial lymph nodes are enlarged whenever we find the cervical nodes enlarged. But one special type of cervical nodular enlargement is significant. Whenever we find that the supraclavicular nodes are larger than the cervical nodes higher up (unless there be local irritation or inflammation to account for this), we have a diagnostic point of importance.

As before stated, the lymphatics of the neck are continuous with those about the bifurcation of the trachea. When, therefore, the tracheobronchial lymph nodes are tuberculous, the intensity of the adenitis in the neighboring lymphatics, is greatest in the ganglia nearest the affected tracheobronchial lymph nodes. The cervical nodes higher up in the neck show less involvement than those nearer the sternum. In line with this is Hoffmann's

observation⁸ that in these cases enlarged lymph nodes may often be felt in the jugulum if the head be bent forward.

In some cases percussion may give a sign of value. It will be found quite often that there is dulness in percussion over the sternum, behind the manubrium and the upper part of the gladiolus, and extending laterally on either side of the bone. It is true that in cases of persistent or enlarged thymus there may be dulness in percussion over the sternum. But this dulness does not extend, as a rule, beyond the margins of the bone laterally. Occasionally, where the nodes are very considerably enlarged, there will be dulness posteriorly in the interscapular space. But this will not happen often because the amount of over-lying lung tissue, even with enlarged lymph nodes, is too great, so that percussion will elicit the usual pulmonary resonance.

Auscultation very often gives positive signs. The respiratory murmur in the interscapular region may be very greatly exaggerated. Inasmuch as this, owing to the anatomical relations, may very frequently be heard on the right side in normal children, this sign must be taken cautiously. But as Widerhofer has pointed out when the auscultatory murmur is much exaggerated, or when it becomes bronchovesicular on the left side, especially if the expiration be very greatly prolonged and harsh, we have a trustworthy sign. When there is extreme compression of one of the primary bronchi, the respiratory murmur may be diminished, or quite inaudible on the corresponding side. Indeed, marked alterations in the respiratory rhythm, when unilateral are always suggestive, in the absence of other local conditions to explain them.⁹

Long ago Eustace Smith¹⁰ called attention to an auscultatory phenomenon very frequently present in these cases. He found that if a child with enlarged bronchial lymph nodes bends his head back, so that his eyes look to the ceiling, a venous hum of varying intensity is heard over the manubrium. This murmur gradually disappears as the chin is depressed, being lost before the head returns to the normal position. This murmur is due to the compression of the left innominate vein between the enlarged nodes and the sternum. It can never be produced by an enlarged thymus, because the thymus lies behind the sternum in front of the great vessels, whereas the nodes lie behind them in the bifurcation of the

trachea. Whenever this murmur can be obtained it is of almost definite diagnostic value, though if the nodes be fixed at some distance from the sternum, the murmur will not be produced by the appropriate maneuver.

If the condition be still more advanced, other pressure effects make themselves manifest. Marked distension of the cervical veins, edema of the face, atelectasis of one lung with consequent dilatation of the right heart, and all of its results, may occur. The hoarseness may be extreme or there may even be complete aphonia, due to the compression of the recurrent laryngeal nerve. The caseous lymph nodes may ulcerate into the surrounding structures, into the pleura, the pericardium, the esophagus, or the trachea. A case of the latter sort, where there was ulceration into the trachea with resulting asphyxia was recently reported to this Academy by Dr. S. E. Allen. But in advanced cases of this sort, the tuberculous process is usually not limited entirely to the lymph nodes themselves, and the child then presents the symptoms and signs of some more generalized form of tuberculosis.

In considering the prognosis of this condition, we must necessarily limit ourselves to the less advanced forms, because otherwise we enter the much larger question of tuberculosis in childhood in its entirety. That the outlook is not always bad is self-evident. For if we remember that on autopsies in children, dying from all causes, these lymph nodes are nearly always found to be tuberculous, and further, that in autopsies in adults, these lymph nodes very frequently show evidences of healed tuberculosis (calcification), it will be clear that reparative processes do go on. Now tuberculosis in infancy and childhood is essentially a disease of lymphatic structures. More than this, it is apt to be localized to a special set of lymph nodes, *e.g.*, the tracheobronchial. And as a recent writer has put it, "This localized form of tuberculosis which may exist for months or years, gradually progressing to other and incurable forms, is the type of tuberculosis which is amenable to treatment, if it is recognized early enough, and appropriate measures are adopted. But if the disease is allowed to progress and become more general, there is the ever-present danger that intestinal tuberculosis, meningitis or acute miliary tuberculosis will develop and place the patient beyond all hope of recovery."

It will be objected that herein lies the difficulty, that this

condition can only be cured, if it be recognized and treated early, and that from the nature of the case, from the vagueness of the symptoms and the indefiniteness of the signs, an early diagnosis is difficult or impossible. But this is not a valid objection. Knowing as we do, from post mortem findings, the enormous frequency of the condition, recognizing, as we must, the universal presence of the casual factors and conditions, we have no right to wait for an absolutely definite diagnosis. We should content ourselves with a diagnosis of probability, and institute appropriate therapy accordingly. When a child presents symptoms and signs which suggest, even though they do not imply, the existence of this condition, the child should be treated on the assumption that the condition exists. More than this, knowing that the disease often remains latent, progressing all the time until it has passed the stage where experience has shown that a cure may be expected, it behooves us to be constantly on the watch, to "suspect" children all the time, as it were.

It will thus appear, that to a degree at least, the therapy must be prophylactic. If after an attack of measles, convalescence is not established within a reasonable time; if a cough persists, for which no explanation can be found on examination of the chest; if the child remains listless, weak, unable or unwilling to study or play; if the appetite is not regained, and the bodily functions not normally re-established, the possibility of persistence of enlarged bronchial lymph nodes (which at this time may not be tubercular) must be borne in mind. This holds good, with practically equal force, for pertussis and influenza.

Not infrequently, this condition is not immediately preceded by an attack of one of the acute exanthemata. The onset may be exceedingly insidious, and the condition (for it often does not manifest itself as a distinct disease), progress to such a point before recognition that the ultimate outlook becomes very grave. Therefore, even at the risk of reiteration, it should be insisted that the possible existence of enlarged lymph nodes be suspected, even though it cannot be demonstrated. Children of tuberculous parents should be carefully watched at all times, frequent and careful examinations being made routine procedures.

Cough, without demonstrable physical signs, should excite suspicion. Anemia, for which no cause can be found, is always

suggestive. A child, who without being positively ill, is never very well, a child "who catches cold" very easily, who is very subject to what its mother calls "stomach cough," and particularly the child whose digestive functions are not good, whose appetite is capricious, the child who does not gain in weight, regularly, steadily, even though slowly, this is the child on whom should rest the suspicion of incipient tuberculous adenitis. And this is the child who should be treated for the condition on mere presumptive evidence if none better can be obtained.

THIS TREATMENT is not always easy to carry out. Much tact and more firmness, much careful observation and more patience are prerequisites of success. The essentials of treatment are good food, good air and rest. For this is a disease where medicines alone avail very little. Our chief aim is to build up the nutrition of the child. The food must be nourishing, easily assimilable, and such as the child will take. The latter is a consideration of importance, for these children are notably finicky about their food. It is here that the physician will do well to avoid hard and fast rules, and he will do better by avoiding fixed general diet lists, the same for all cases. The special idiosyncrasies of the individual child must be studied, but a reasonable amount of firmness in carrying out a prescribed diet must be insisted on. In general terms, it may be said that milk, eggs, meat, and bread with a great abundance of butter, should form the main articles of diet for children old enough to take them. Excess of starchy foods must always be avoided. The natural, too often the unnatural, craving of children for sweets may be met by allowing the child fruits, light desserts, and if there be no constipation, pure stick chocolate.

These children should be taken from school and kept in the open air all day long. Even in cold weather the child, warmly dressed, should be urged to remain out doors, being allowed to be in the house only during very damp or wet weather.

The bowels and kidneys should be kept active, and frequent baths given. One can often secure the latter much desired result by suggesting the use of salt baths, which certainly do no harm. The child is to sleep in a room with windows open during all kinds of weather, and it should be encouraged to take a great deal of rest. This holds good for the day, as well as for the night, especially if there be fever. It is not necessary, often not

advisable, that such a child have an enormous amount of exercise—rest in pure air will do very much better. If the air be pure and not too moist, the climate *per se* is not a matter of so much importance. Though of course change of climate, when possible, often aids recovery very materially. But this is possible for only a very limited number after all.

With reference to the medicinal treatment, there are three drugs of especial value. These are the iodid of iron, cod-liver oil and creosote. The iodid of iron, given preferably in the form of the syrup, acts very well as a ferruginous tonic in these cases, besides having some effect upon the tuberculous process in the lymph nodes. The cod-liver oil, though it should be used regularly, should not be given in too large doses, a mistake frequently made.

The creosote would appear to have an especially beneficent action on the enlarged nodes. It may be given with the oil in doses not large enough to interfere with digestion. Very often, however, it will be found that the child objects very seriously to the creosote in the ordinary form. It may then be given in pill form, special creosote pills, coated with a mixture of salol and shellac, being obtainable. These pills offer a most convenient mode of administering creosote, if the child be old enough to swallow pills. If the creosote as such is not tolerated, the carbonate of guaiacol may be often substituted with good effect. It should also be noted that inunctions of guaiacol, which children seem to stand in proportionally larger doses than adults, are often valuable adjuvants of the treatment. The guaiacol ointment suggested by Rachford¹¹ has yielded excellent results in my hands. This consists of

R/	Guaiacol,	-	-	-	-	-	4,0
	Lanolin,	-	-	-	-	-	8,0
	Lard,	-	-	-	-	-	20,0

of this a level teaspoonful is rubbed into the chest at bedtime each evening.

It is true that we have no specific medication for this condition, it is true that we have no specific means of recognizing disease of the bronchial lymph nodes. But it is none the less true that we can very frequently, very strongly suspect the existence of the condition, and having done this, take measures

which, in very many cases, even though by no means in all, will enable us to arrest definitely a localized tuberculosis before general infection has ensued.

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Lavage of the Stomach in the Infant.—M. L. Babonneix (*Gazette des Hôpitaux*, January 14, 1902) states that the temperature of the liquid used in this proceeding is most generally lukewarm, although it is varied according to the condition of the patient. If there is tendency to collapse and the temperature is below normal, the liquid may be 37° or 38° C. If, on the contrary, there is fever, the liquid used may be cool. It is difficult to state definitely any fixed quantity to be used, as the process is continued until the water returns limpid. The solutions used also vary according to the case. These washings are kept up every day, at least during the acute stage of gastro-enteritis; but they ought not to be indefinitely prolonged. The time for lavage is at the end of the period of digestion, that is, as a rule, two hours and a half or three hours after a feeding. Accidents from this procedure are very rare. The effects of lavage are especially mechanical; evacuation and cleansing of the stomach, diminution of the fermentations, etc. Still more, lavage excites reflex intestinal contractions, contractions of the muscles of the abdominal wall, and hypersecretion of all the glands of the digestive tube.—*Medical Record*.

A NOTE ON THE TREATMENT OF GASTROINTESTINAL
HEMORRHAGE IN THE NEWLY-BORN BY
SUPRARENAL EXTRACT.*

BY L. EMMETT HOLT, M.D.,

New York.

On February 26, 1901, I was asked by Dr. J. H. Moore, of New York, to see with him a baby twenty-four hours old, who was reported to be vomiting blood and also passing it from the bowels. I found a large, well-developed infant, weighing nine pounds at the time of birth. The labor was reported to be a natural one. Up to the time the infant was sixteen hours old it appeared in every respect quite normal. It then began to vomit blood, and this was repeated at intervals of a few minutes until I saw the child, about eight hours after the beginning of the symptoms.

The patient was the fifth child; the first was still-born; the second and third were alive and well; and the fourth died from hemorrhage, which began the second day after birth and continued up to its death on the fourth day. There was no suspicion of syphilis in either of the parents, both of whom were strong, healthy-looking people.

On examination there were found fine petechial spots about the neck and upper part of the chest, and one larger hemorrhagic spot over the left shoulder; many minute punctate hemorrhages were seen on the mucous membrane of the mouth. The amount of blood vomited each time was from a few drops to a teaspoonful. Most of it was of a dark-brown coffee-color mixed with mucus. Three or four large towels were shown which were pretty well covered with this material. There was no bleeding from the nose and no sign of a bleeding surface in the mouth or pharynx. The bowels had moved three or four times, the discharge being a little darker than normal meconium. The general condition of the baby was excellent. It was strong and vigorous, the heart and lungs were normal and no bleeding was

* Read before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

taking place from the cord. Several times during my stay in the house, I had an opportunity to see for myself the vomiting of blood. There seemed every reason for believing that the hemorrhage came from the stomach and it was decided to try the effect of suprarenal extract. One grain of the saccharated extract was ordered every hour, suspended in water.

This was given regularly for six or eight hours, after which the dose was reduced by Dr. Moore to half the quantity, on account of the difficulty in swallowing, owing to the astringent effect upon the pharynx and esophagus, and the intervals were made longer.

Twelve hours after beginning the suprarenal, the hemorrhages entirely ceased and did not recur. The child then began to take its food normally, and when forty-eight hours old was nursing as well as any child. By the fifth day the minute hemorrhages beneath the skin had disappeared as also those on the mucous membrane of the mouth. In all the child took twelve grains of the suprarenal, and of this ten grains were retained. The entire period of the hemorrhages lasted about thirty hours. The subsequent history of the child was uneventful. The cord separated in the usual time and no bleeding occurred. A report received three months later stated that the child was well in every respect.

No one realizes more than I do how uncertain are deductions drawn from a single observation, and my object in reporting this case is chiefly to call attention to the use of suprarenal extract in this condition, with the hope that a larger trial may be given to it in order to determine of how much value it really is. In my own experience, few things have been more unsatisfactory than the treatment of severe gastrointestinal hemorrhages in the newly-born. Occasionally a case recovers without active treatment, but the large majority go from bad to worse, and even children previously robust usually succumb after two or three days. In the case reported there seemed no escape from the conclusion that the drug given as above really benefited the child.

I have not had an opportunity to try it a second time, but Dr. Moore has reported to me a case of another child in which it was used. This was briefly as follows: The child began bleeding at two days. The suprarenal was used as in the other case reported, one grain every hour. The gastrointestinal

hemorrhage was controlled, but there was extreme bleeding beneath the skin and possibly a meningeal hemorrhage also, as the fontanel became very much bulged and the baby developed convulsions and died. In such a condition a fatal result was inevitable under any treatment.

The solution of the active principle, adrenalin, is possibly to be preferred for internal use to the powder, as one grain of the extract makes a rather large dose for a young infant. Whether any marked effect upon general hemorrhages is to be expected by internal administration of the extract is problematical, but its local effect seems to be proved in the case reported.

DISCUSSION.

DR. MORSE.—I have recently seen a case of hemorrhage in the new-born in which I used suprarenal extract locally. The baby was born, after a difficult forceps operation, and was wounded on both cheeks. On the following day hemorrhage occurred from one of these wounds, and later there was hemorrhage into the orbit and the child vomited some blood. On the second day the dry powdered extract was applied to the oozing surfaces with apparently no results whatever, and it became necessary eventually to use Monsell's solution and digital pressure. The child recovered perfectly. It seemed to me a favorable case for the use of the extract, but it failed completely.

DR. ROTCH.—The use of suprarenal extract, if it proves to be valuable, will be an important addition to our methods of treating hemorrhage in the new-born. These cases are often not hemophilia but hemorrhages possibly due to infection in which there is more or less of a tendency to get well without the aid of any drugs. The cases of hemophilia almost invariably die. There should, however, be a sharp distinction between the constitutional and supposed hereditary bleeding from hemophilia and those cases of hemorrhage occurring at birth and apparently of a local and infectious class, the hemorrhagic disease of the new-born.

DR. WILSON.—It seems to me it is most important in estimating the value of a therapeutic measure that as clear a conception as possible should be had of the natural history of the disease under consideration. As Dr. Rotch has pointed out, there are two essential conditions which are quite different in the origin of these hemorrhages, and in some there is a tendency to spontaneous recovery. In a case of this kind it seems to me

an improper estimate of the value of a therapeutic agent might arise.

DR. HOLT.—I would like to say a word about the use of the term hemophilia. It seems to me that is a misnomer when applied to the hemorrhages in the new-born. This disease, it is well known, has no relation to the hereditary disease, hemophilia, and the same term should not be applied to them. The hemorrhagic disease that occurs in the new-born is a self-limited one, probably of infectious origin, and the children either die or recover completely.

DR. CHAPIN.—Do I understand the last speaker to say that hemophilia does not occur in the first two or three weeks of life?

DR. HOLT.—It rarely appears until after the first year.

DR. CHAPIN.—In a case I saw there was the family history, and the child had hemorrhages shortly after birth.

I am very glad to know of the possibilities of good from the use of suprarenal extract and I shall certainly try it.

DR. CARR.—In a recent communication from Dr. Bates, whose experimental work on suprarenal extract has been so valuable, the statement was made that the great fault in the use of the extract has been in not using the aqueous solution. To get the best result he states that we should dissolve the powder, and he thinks its effect will be noticed within ten minutes in every case. That may be a little enthusiastic, but there is no doubt that when the hemorrhage can be reached locally the effect of the suprarenal extract is most satisfactory.

The Lymphatic Tissue of the Eustachian Tubes and the Tympanic Cavities in the Embryo, in the New-Born and in Children, according to Anton (*Zeitschrift f. Heilkunde*, Vol. xii., parts 6, 7, 8 and 9) exhibits a certain constancy in regard to its quantity and the form of its occurrence. In the Eustachian tube of the embryo it is altogether absent. As a rule it is present at birth and increases in quantity until the age of one and one-half or two years, when it has reached the height of its development, after which it appears to decrease somewhat. It is present in the new-born as a cellular infiltration of the folds of mucosa and as narrow streaks (probably lymph vessels). While not the rule, a correlation may exist between the pharyngeal tonsil and the lymphatic tissue of the Eustachian tube. The presence of adenoid tissue in the tympanic cavity is believed to justify the suggestion that it may be called the tympanic tonsil.

—*American Medicine.*

Clinical Memorandum.

A CASE OF MONGOLIAN IMBECILITY *

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Professor of Diseases of Children, etc., in the Hospital College of Medicine,
Louisville, Ky.

The patient is a negro boy aged eleven years, who presents the typical appearance of Mongolian or Kalmuc imbecility. The name is more appropriate than most of the names that have been saddled upon different conditions, for the oblique axes of his eyes certainly suggest the Mongolian face. His lips are thicker even than the ordinary negro's and the expression of his face is far from bright.

When he first presented himself at the clinic some four or five years ago he had, in addition to the oblique palpebral fissures and the thick lips, pot belly with lordosis, an umbilical hernia and a squat figure, but these have disappeared. There was a superficial resemblance to cretinism though the differentiation was not difficult.

Such cases constitute about 5 per cent. of the imbeciles. The children are good-natured and are able to take a certain amount of care of themselves though their mentality is not extensive. They can be taught some of the simpler details of life, and in fact should receive instruction from expert teachers, so that they can become in part self-supporting. This boy is sufficiently intelligent to keep in out of the weather, knows his name and can count up to four or five. With well-directed effort he might be taught some of the simpler trades.

I put him on thyroid treatment when I first saw him, as I thought it might be of some benefit to him. We have learned of the value of thyroid feeding in myxedema, cretinism and allied disorders. The therapeutic possibilities of thyroid extract have not yet been fully worked out, and this treatment was in the nature of a therapeutic experiment. I cannot say that I have noticed any change in his mental condition, though I thought a very rapid growth while taking the thyroid might be ascribed to that agent. I have reported the case because our knowledge of any subject is made up of these small increments.

* Reported to the Louisville Clinical Society.

ARCHIVES OF PEDIATRICS.

APRIL, 1902.

EDITED BY

WALTER LESTER CARR, A.M., M.D.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

THE BACTERIOLOGY OF NOMA.

During the last fourteen years a number of investigators have published results of the bacteriological study of one or more cases of noma. The majority described slim, thread-like bacteria as present in large numbers and in almost pure culture in the deeper portion of the slough, while the superficial layers contained a mixture of the pyogenic cocci and various bacilli. In some cases these thread-like organisms were easily cultivated upon the ordinary media (Schimmelbusch, Lingard); in others (Schmidt, Krahn, Blumer and Macfarlane) neither the ordinary aërobic nor anaërobic methods of cultivation sufficed to grow them. A recent epidemic of measles in the Albany Orphan Asylum was followed by the development of 16 cases of noma. Nine of these were studied by Blumer and Macfarlane, and in all

of them the only organism constantly present in large numbers was one which in smears took the form of a leptostrix, the short forms being bent and the long ones curled or wavy. In the early stage of the process it was almost the only organism present, but as the disease progressed others appeared. In 1 fatal case sections showed the same thread-like organism in enormous numbers in the deeper portion of the necrotic zone, and they gradually diminished toward the healthy tissue. An important fact in this investigation is that the threads were found in noma of the vulva and rectum as well as of the face, so that Krahn's theory, which assumes that they are only ordinary mouth organisms of increased virulence, is not tenable. On the other hand, until these bacteria can be grown in pure culture and inoculation experiments made with them, their etiological relationship to noma cannot be definitely accepted.

Babes and Zambilovici and Guizetti isolated short, thick bacilli which they were able to cultivate on ordinary media. The latter produced gangrene in rabbits by means of his cultures.

In another and very interesting series of noma cases, diphtheria bacilli, for the most part very much diminished in virulence, were cultivated from the gangrenous areas. Bishop and Ryan reported such a case in 1895; and Nicolaysen, in the following year, obtained a non-pathogenic organism resembling the diphtheria bacillus, from 2 cases. In 1 of the cases of Freymuth and Petruschky, noma of the genitalia, from which diphtheria bacilli were cultivated, antedated the development of faacial diphtheria. Antidiphtheritic serum was given and the child recovered. Recently (1901) Walsh found the Klebs-Löffler bacillus in 8 cases of noma examined, and Sailer reported 2 cases of typhoid fever followed by noma, in which cultures showed the diphtheria bacillus; antitoxin was administered.

It will be interesting in future investigations to note whether the thread-like organisms are present in those cases in which the diphtheria bacillus is found. At all events, the fact that the

presence of the diphtheria bacillus has been demonstrated in an appreciable number of noma cases necessitates cultural search for this organism at the earliest possible moment in every instance, in order that the antitoxin treatment may not be delayed.

The American Pediatric Society will meet in Boston on May 26th, 27th and 28th. Members of the Society who have papers to present are requested to communicate with the President, Dr. W. S. Christopher, or with Drs. Blackader and Rotch who are in charge of the arrangements for the meeting.

The Section on Diseases of Children of the British Medical Association promises an exceptionally interesting and important session for the meeting to be held in Manchester from July 29th to August 2d. The subjects selected for discussion are: (1) "Feeding in the Wasting Diseases of Infants"; (2) "The Value of Respiratory Exercises in the Nasal Obstructions in Children"; (3) "The Surgery of Chronic Hydrocephalus, Meningocele, etc."

Papers are asked for on the anemias of infants, congenital rickets, and the education of backward children.

Dr. Henry Ashby, the President of the Section, extends, in behalf of the officers of the Section, a cordial invitation to physicians of the United States and Canada to participate in the meeting and discussions. Intending visitors should notify the secretaries, J. Howson Ray, St. John Street, Manchester; R. Marsden, 96 Moseley Street, Manchester, and J. S. Fowler, 68 Northumberland Street, Edinburgh.

Bacteria in Milk.—Careful investigations touching the presence of bacteria in milk go to show that almost entirely such microorganisms gain entrance through external, dirty methods and surroundings. Belcher has found upon studying the subject of milk contamination at least seven leading conditions or avenues for the admission of impurities. These concern, 1. Cleanliness of the barn used for the cows. 2. The condition of the cow. 3. The condition of the milker. 4. The condition of the utensils. 5. The condition surrounding the cooling process. 6. The conditions belonging to transportation. 7. The final methods of delivery.—*Clinical Review.*

Bibliography.

Syphilis—A Symposium. Special Contributions by L. Duncan Bulkley, Follen Cabot, Jr., Louis A. Duhring, Prof. Fournier, Eugene Fuller, E. B. Gleason, William S. Gottheil, Robert H. Greene, Norman B. Gwyn, Orville Horwitz, Edward L. Keyes, G. Frank Lydston, D. J. McCarthy, Thomas G. Morton, Boardman Reed, A. Robin and J. D. Thomas. New York: E. B. Treat & Co. 1902. Pp. 122. Price \$1.00.

These communications concerning syphilis by seventeen different writers, nearly all of whom are syphilographers of prominence, are reproduced in book form from the *International Medical Magazine*, and the subject is discussed from various points of view.

Although there is no communication relating especially to congenital syphilis, the disease is considered in all its phases, and the observer has no difficulty in finding a complete clinical picture in the descriptions given. Dr. Thomas, of the Western Pennsylvania Medical College, in a chapter on the diagnosis of communicative syphilis in a wet nurse, states that while it is repugnant to all medical men to permit the engagement of a wet nurse who is a tertiary syphilitic, she cannot infect her nursling. The milk may be lack in nutritive value, but the poison of the disease will not be communicated to the foster-child. In determining the secondary period of syphilis, a physician must depend upon his clinical knowledge and experience. Attention is called to the fact that the site of an initial lesion may be discovered by an enlargement of lymph nodes exaggerated as compared with the general adenopathy. Physicians of experience will agree with the author that where the histories are not known it is often difficult to find a lesion upon which to base a positive diagnosis.

For a survey of this important subject of syphilis the practitioner cannot do better than to read this symposium.

The American Year-Book of Medicine and Surgery for 1902. A yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery. Arranged,

with Critical Editorial Comments, by Eminent American Specialists, under the Editorial Charge of **George M. Gould, A.M., M.D.** In two volumes—Volume I., General Medicine, octavo, pp. 700. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902. Per volume: Cloth, \$3.00.

The plan of issuing the Year-Book in two volumes, inaugurated two years ago, met with such general favor with the profession that the publishers have decided to follow the same plan with all succeeding issues.

Drs. Starr and Hand continue as the able editors of the Section on Pediatrics. The abstracts in this department are well collated and are commented upon, when necessary, in bracketed notes. In general appearance the volume is an excellent example of clean book-making.

Enlargement of Bronchial Glands in Children.—D. McM. Officer calls attention (*Intercolonial Medical Journal of Australasia*) to the large number of children who are affected with enlarged bronchial glands, which are so often the starting point of tuberculosis. In the diagnosis of the condition, if it be found that there is definite enlargement which persists for more than a fortnight or so, it should be assumed in the majority of cases that it is tuberculous, and the patient should be treated by open air, forced feeding, careful attention to hygiene, and guaiacol, and cod-liver oil internally. For the spasmodic jerky cough, the author uses thirty drops of creosote, with or without menthol, burnt on a hot shovel in the patient's room at night. At any time during treatment, sudden dissemination may take place, such as pulmonary infection, or even a general tuberculosis. Caseous glands have been known to rupture into a bronchus, with perhaps immediate suffocation from caseous material aspirated, or by hemorrhage into the bronchial tube. The author pleads for early recognition of a pathological process which has been largely overlooked in children, and which has an important and lasting effect on their lives.—*Medical Record*, February 15, 1902.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—
LONDON.

Meeting of February 21, 1902.

DR. JAMES TAYLOR, CHAIRMAN.

MR. J. JACKSON CLARKE showed a girl aged nine years who sustained a

FRACTURE OF THE OUTER CONDYLE OF THE HUMERUS in August, 1901. When seen two weeks after the injury the elbow was rigidly extended, the ulnar was dislocated backwards and the bones of the forearm outwards. Under chloroform the elbow joint was fixed at a right-angle. There was now perfect power of pronation and supination and an increasing degree of flexion and extension.

DR. C. O. HAWTHORNE showed a case of SPASTIC PARAPLEGIA (CONGENITAL) IN A BOY AGED TWO YEARS, NINE MONTHS AND TWELVE DAYS.

There were cross-leg progression and heightened tendon phenomena, but no positive evidences of a cerebral lesion. No specific disease or family neurosis.

DR. CARRE-SMITH inquired as to the results of ophthalmoscopic examination.

MR. TUBBY was of opinion that the subjects of this affliction were never mentally complete.

DR. G. A. SUTHERLAND regarded the slight strabismus present in the case as confirmatory of a cerebral origin.

DR. ROBERT HUTCHISON was inclined to regard the case as one of Little's disease.

THE CHAIRMAN thought that syphilis undoubtedly played a part in the causation of the disease, for he had seen some patients with syphilitic choroiditis.

DR. HAWTHORNE, in reply, said the fundus showed no changes, and that the family history was not suggestive of syphilis.

DR. HAWTHORNE also showed a

CASE OF HYPERSTROPHY AFFECTING THE RIGHT LEG OF A BOY.

The condition seemed to affect the bones as well as the soft tissues. The tibial arteries were probably enlarged. Hemorrhagic spots and patches were present on the leg and dorsum of the foot. No other deformity except a moderate degree of hypospadias.

DR. A. E. SANSOM believed this was a case of genuine hypertrophy.

DR. F. PARKES WEBER thought the spots and patches were distinctly nevoid. The veins and arteries of the limb were much dilated.

MR. SYDNEY STEPHENSON showed a girl, eleven years of age, with a

CONGENITAL PARALYSIS OF THE OCULOMOTOR NERVE

on the right side. After discussing the theories of causation, he concluded that the condition was due to an absence of functional inactivity of the nuclei of origin of the nerve.

THE CHAIRMAN, after mentioning the rarity of such cases, said he did not know whether any definite lesion had yet been found in the nerve nucleus.

MR. CARRE-SMITH asked if there was any evidence of congenital syphilis.

MR. STEPHENSON, in reply, stated that there was neither family nor personal evidence of syphilis.

MR. E. W. GOBLE exhibited a

SPECIMEN SHOWING PERFORATION OF A TUBERCULOUS ULCER OF
A SMALL INTESTINE

in a boy of six years. The child died from general tuberculosis.

DR. Gwynne (Sheffield) remarked that tuberculous nodules in the intestine sometimes existed without causing any symptoms. He had come across such nodules when operating for the radical cure of hernia in children.

DR. L. C. CHAFFEY (Brighton) exhibited a

SPECIMEN OF CIRRHOSIS OF THE LIVER

from a girl of ten years.

DR. LISTER thought that some obscure cases of cirrhosis of the liver in children might be explained as the result of an acute enteritis.

THE CHAIRMAN alluded to a case in a girl, aged fifteen years, who suffered from choreiform movements.

DR. GEORGE CARPENTER showed a case of

PAROXYSMAL HEMOGLOBINURIA IN A BOY AGED THREE YEARS.

There was no evidence of syphilis. Application of ice-cold water to the extremities induced an immediate destructive action on the red corpuscles to the extent of 20 per cent., but failed to produce hemoglobinuria.

DR. WEBER urged the importance of a warm climate in the management of such cases.

DR. CARPENTER showed a case of

EXTREME ICHTHYOSIS IN AN INFANT AGED FIVE MONTHS, which developed a few days after birth. It had also craniotabes and chronic snifflies.

DR. CARPENTER also showed a boy, aged eight and one-half years, with a

LARGE HEAD, PROBABLY HYDROCEPHALIC,

a supposed sequel of basic meningitis during infancy. There was rigidity of the lower extremities and a feeble gait. The enlarged head was not characteristic of hydrocephalus and was somewhat suggestive of hypertrophy of the brain.

DR. C. N. Gwynne (Sheffield) described the case of a boy, aged six and one-half years, who was admitted to hospital suffering from

OBSTINATE CONSTIPATION AND GREAT EMACIATION.

His abdomen was enormously enlarged. As no action of the bowels could be obtained, either by medicines or by injections, left iliac colotomy was performed. The condition was diagnosed as a congenital dilatation of the sigmoid flexure of the colon. The result of the operation was satisfactory.

DR. J. PORTER PARKINSON read a paper on

THE LOCAL TREATMENT OF ADENOIDS.

This consists in the direct application to the nasopharynx of an astringent composed of equal parts of solution of perchlorid of

iron and glycerin, applied by means of a curved brush passed behind the soft palate. He advised this treatment for soft and gelatinous adenoids, which cause temporary recurrent obstruction of the nasal passages, and other symptoms, as cough, headache, aural discharges and deafness. The method is applicable to patients of any age and can be carried out with a minimum of discomfort.

The Influence of High Temperatures on Tubercl Bacilli in Milk.—Barthel and Stenström (*Centralblt. f. Bakter.*, October 8, 1901,) in reviewing recorded experiments on the sterilization of tuberculous milk, remark on the very variable results obtained by different observers. Bang has stated that heating tuberculous milk to 80° C. is not sufficient to kill the bacilli, but that a temperature of 85° C. is sufficient for the purpose. Forster has found 70° C. for five to ten minutes capable of killing the organism; De Man, 70° for ten minutes and 80° for five minutes. Galtier has shown that milk submitted to 70°, 75°, 80° and 85° for six minutes is still capable of conveying infection, and others have had similar results. Barthel and Stenström have conducted experiments which go to show that the chemical reaction of the milk has much to do with the facility with which it is sterilized. The material was obtained from a cow with an udder in an advanced state of tuberculosis. Guinea pigs were used to test the results, and the effects of 65°, 70°, 75° and 80° were studied. The results were positive in all cases; that is to say, a temperature of 80° for ten minutes, a temperature of 75° for fifteen minutes, 70° for fifteen minutes, and 65° for twenty minutes were all incapable of sterilizing the milk. These results the authors interpret as follows: Storch has shown that the chemical changes in milk are the more marked the more advanced the disease of the udder, and that the reaction becomes more and more markedly alkaline. On the other hand, it has long been known that it is more difficult to sterilize an alkaline than a neutral, and a neutral than an acid fluid. The specimen with which they worked was strongly alkaline, and to this they ascribe the difficulties in its sterilization. Variations in chemical reaction explain, in their opinion, the variations in the results obtained by other investigators.—*British Medical Journal.*

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON PEDIATRICS.

Stated Meeting, February 13, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

ACQUIRED SYPHILIS IN A YOUNG CHILD.

DR. SARA WELT-KAKELS presented a girl of eight years suffering from a recently acquired syphilis. She had been well up to seven weeks before, when the clitoris was noticed to be greatly swollen. Examination showed the clitoris to be the seat of the initial lesion of syphilis, and in addition there was general and marked adenopathy and a macular syphilitic eruption on the body.

. STOMATITIS DUE TO THE BACILLUS OF VINCENT.

DR. H. HEIMAN presented two children with ulceromembranous stomatitis. By making a smear from the lesion and staining it with carbol-fuchsin the bacilli of Vincent were demonstrated. The treatment had consisted in the use of a permanganate of potassium mouth wash and the application of a 10 per cent. solution of nitrate of silver.

DR. E. LIBMAN said that it was not true that these bacilli were specific, for they were found in connection with other diseased conditions, and in general where there was destruction of tissue. Even though this bacillus was found to be present, one could not exclude syphilis, though their presence might serve to differentiate a given exudation from true diphtheria.

DR. A. J. LARTIGAU read a paper on

THE PATHOLOGY OF FAUCIAL AND PHARYNGEAL TONSILS.

After a brief review of the recent advances in the knowledge of the physiology of these structures, the speaker discussed the general pathology of lymphoid tissues of the pharynx. He dealt particularly with tuberculous lesions of these structures, and brought forward the results of his own studies on primary tuberculosis of the hyperplastic pharyngeal tonsil. Out of 75 hyperplastic pharyngeal tonsils which were investigated by animal experiments and histological study, 12 contained tubercle bacilli. Of these 12, 8 contained tubercle bacilli and morphological lesions of tuberculosis. The virulence of the tubercle

bacilli was investigated in 3 instances. The tubercle bacilli were all of attenuated virulence. The speaker also brought forward other bacteriological studies by himself and others to show that the hyperplastic tonsil is often the seat of bacterial infection, often without lesions. The organisms ordinarily encountered are the pyogenic bacteria common to the mouth, especially the streptococcus. The microorganisms were usually limited to the outermost portions of the tonsils, only rarely being found in the deeper parts.

OPERATIVE TREATMENT OF ADENOIDS AND ENLARGED TONSILS.

DR. W. K. SIMPSON read this paper. He was decidedly in favor of operating on all cases of hypertrophy of the tonsils or of adenoids where there was sufficient of the growth to produce symptoms. He pointed out that these pathological conditions were responsible for many of the ills of childhood, as, for example, for repeated attacks of coryza, asthma, spasmodic croup and bronchitis, as well as for most cases of middle-ear deafness. A digital exploration should precede operation. The finger should never be used for the removal of these growths; either the curette or forceps should be employed. The choice of instrument was largely a personal matter. His own preference was for the forceps, because by its aid one could remove a larger mass and could see what had been removed. The forceps should, however, be large and strong, and should have a sufficiently large cutting edge and a shield to prevent injury to the uvula and posterior border of the soft palate. Some form of the Graedle forceps was commonly employed; that known as Concannon's modification was one of the best. A mouth-gag having been inserted, the forceps should be introduced closed, then opened widely, pressed well upward and back, and the growth seized and withdrawn. If a curette were preferred, some form of the Gottstein curette would probably be selected. It should be selected with a view to size and proper curve, these being determined by the age of the child and the situation of the adenoids. If the operation were done without an anesthetic the child should be held upright in the intubation position, otherwise the patient's head should be raised for a moment during the introduction of the instrument, and then lowered and turned to one side to favor the escape of the blood.

DR. SIMPSON said that he preferred to extirpate the tonsils by the aid of some form of tonsillotome, either the simple and admirable instrument of Mackenzie or Ermold's simplified Mathieu tonsillotome. The secret of success in thoroughly excising the tonsil was making pressure outward upon the shaft of the instrument, and keeping up this pressure until excision had been completed. While the operator pressed outward, the assistant should, by external pressure on the neck, press the tonsil into the ring of the tonsillotome. If the tonsils were intimately adherent to the pillars of the fauces, they should be freed with the scissors before using the tonsillotome. Tonsils once thoroughly extirpated do not return. The surgeon need not fear hemorrhage in children. The bleeding may be rather profuse, but it usually ceases spontaneously, and if not, can be readily checked, either by finding and seizing the bleeding point, or by the application of peroxide of hydrogen, suprarenal extract or adrenalin solution. He had found the latter especially serviceable in connection with the excision of the tonsil in older children or in adults, though it was claimed by some that adrenalin predisposed to secondary hemorrhage. The less after-treatment the better. Douches, sprays and powders should not be used, for they were apt to cause an undesirable degree of motion of the throat, and so favor bleeding. The patient should be kept quietly in the house, and the diet, which should be light, should not embrace such things as crusts of bread, dry crackers or meat. The comfort of the patient would be enhanced by allowing cracked ice to swallow, or by the external application of ice. Dr. Simpson said that while he believed general anesthesia was almost essential to thoroughness in an operation on adenoids, he did not favor the use of an anesthetic in tonsil-lotomy, because the gagging of the patient aided in bringing the tonsil better into view, and a conscious patient was more manageable in the event of dangerous hemorrhage occurring.

RECENT CONTRIBUTIONS TO THE CONSTITUTIO LYMPHATICA.

DR. JAMES EWING read a paper on this subject. He said that he had pointed out in a previous communication the probability of many sudden deaths occurring in the course of the infectious diseases being dependent upon this disease, and since then there had been reported a number of cases that tended to strengthen this view. The chief clinical features of the consti-

tutio lymphatica were: (1) General lymphatic hyperplasia; (2) persistence of the thymus; (3) hypoplasia of the aorta, and sometimes also of the heart; (4) evidence of rachitis; (5) evidence of retarded development of various organs; (6) enlargement of the thyroid, and (7) general neurotic tendencies. Nervous symptoms are prominent throughout the whole course of the disease, and the *grand mal* type of epilepsy occurs almost exclusively in such subjects. Chloroform was almost uniformly fatal in persons of the lymphatic constitution—indeed some thought it was only fatal in this class—yet it was a common practice among those who made it a rule to give ether to adults to administer chloroform to children. Since writing his first paper he had learned of about 15 fatal cases of this kind.

NOTES ON THE SURGICAL TREATMENT OF ENLARGED LYMPH NODES.

DR. CHARLES N. DOWD read an abstract of the paper he had prepared on this subject. He is a firm believer in the surgical removal of tuberculous lymph nodes so soon as the diagnosis has been made, and his experience, which has been quite extensive, shows that the incisions may be so placed as to cause less disfigurement than the scars resulting from abscesses. In the cases upon which he had operated there had been 23 apparent cures, and 47 had been improved. One series of 10 cases had been followed for from four to eight years, and of these 8 had been cured. A German surgeon had reported 130 operative cases with 70 per cent. of cures, and a series of 167 non-operative cases with only 24 per cent. of cures.

DR. A. JACOBI said that while all would agree on the advisability of operating for the removal of large adenoids, this unanimity of opinion ceased when it came to consider the best treatment for those cases in which the adenoids were so small and scanty as not to give rise to snoring. His own belief was that these cases should not be operated upon, and this opinion was founded on an extensive experience with the irrigation treatment. The nasal chambers should be irrigated with a cup twice a day, using either saline solution or a solution of boric acid. This simple treatment would prevent inflammation and cure even chronic cases. He does not use an anesthetic in operating for adenoids, believing that to be effective in such cases the anesthesia must be carried to a dangerous degree. His plan is to have the child held in front of him on the lap of mother or

assistant, and with its head buried between his thighs. With a Gottstein curette the operation could be completed in a minute.

DR. FRANCIS J. QUINLAN took issue with Dr. Jacobi on the question of treating certain cases of adenoids by non-operative means. He declared that adenoids which to-day might seem insignificant might by to-morrow be formidable. Moreover, in his opinion nasal irrigations were harmful, because of the danger of forcing secretions into the middle ear, and were also useless. The occurrence of snoring did not necessarily mean that nasal obstruction was present; it might result from the dropping back of the tongue or from vibration of the soft palate.

DR. H. D. CHAPIN agreed with Dr. Jacobi regarding the inadvisability of operating on the mild cases of adenoids; he thought the laryngologists had had reference only to the severer cases. He had recently had under his care a case in which the adenoids were diminishing under daily irrigations.

DR. W. K. SIMPSON said that many of these so-called mild cases proved to be anything but mild in the end, for they were prone to develop otitis media.

DR. DOWD emphasized the point made by Dr. Ewing concerning the danger of administering chloroform to children, and asserted that ether should be the anesthetic of choice.

DR. LARTIGAU said that from what has been said, many may have gotten the impression that death in a case of status lymphaticus is apt to occur only when chloroform is administered. As a matter of fact in the last two years, he had been able to study a half dozen cases in which death occurred after the administration of ether.

The Subsequent Fate of Children Subjected to Tracheotomy and Intubation.—In studying the effect of tracheotomy and intubation upon the subsequent health of children, Trumpp (*Münchener Med. Wochens*, October 22, 1901,) finds that of the 351 thus operated upon for diphtheritic laryngeal stenosis during 1886 to 1896, 23 have since died, while 328 are still living. Of the latter, 64 children have suffered since the operation with diseases of the pharynx, larynx and lungs. He therefore concludes that Sandouzy's theory that such children seldom attain the adult stage is incorrect, and that tracheotomy apparently only rarely predisposes the individual to tuberculous infection.
—*American Medicine.*

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, February, 20, 1902.

CHARLES L. DANA, M.D., VICE-PRESIDENT, IN THE CHAIR.

SYMPOSIUM ON VACCINATION.

DR. ALONZO BLAUVELT opened the evening's discussion with a preliminary on "The Action taken by the Health Department on Report of a Case of Smallpox." He said that a diagnostician and police officer first visited the case, and if the person were thought to have smallpox he was taken to Riverside Hospital for observation, and was subsequently sent to North Brother Island. The occupants in the same house with the patient were offered vaccination, the premises were kept under surveillance for three weeks, and during this time the children were not allowed to attend school.

DRY POINTS VERSUS GLYCERINATED VIRUS FROM A BACTERIOLOGICAL STANDPOINT.

DR. M. J. ROSENAU, Director of the Hygienic Laboratory of the Marine Hospital Service, was the author of this paper. He stated that while the protective power of humanized virus was generally admitted, such was the danger of transmitting through it syphilis and other diseases that this vaccine was no longer used in some countries. Bovine virus had been known since 1842, but had been many years in coming into extensive use. Glycerinized vaccine virus was of comparatively recent introduction, having been first suggested in 1891. While the glycerin was looked upon as a preservative, it was well to remember that it could hardly be considered as a powerful bactericide, for it only killed bacteria by a process of dehydration, which required, in the case of streptococci, eleven days, and for other germs even a longer time. Moreover when diluted, glycerin was known to be a good culture medium. The experiments forming the basis of this paper had been made with ninety-two samples of vaccine obtained from eight different manufacturers. Of the forty-one dry points examined, there was an average of 4,807 colonies of bacteria per point, and of the fifty-one samples of glycerinated virus, the average per point was 2,865 colonies. However, in going over the figures it was found that some

samples of glycerinated virus contained an absurdly large number of colonies. That this was in part due to the virus being marketed while still "green" was proved by the fact that some of these samples showed comparatively few bacteria when again examined after the lapse of a considerable time. In any case, the need of government control over the manufacture of vaccine seemed evident.

THE VALUE OF DRY POINT COMPARED WITH THAT OF
GLYCERINATED VACCINE VIRUS.

DR. F. S. FIELDER read this paper, comprising the results of an investigation that he had made in the past two or three months. He had experimented with fourteen ivory points, representing eight manufacturers, and with two lots of dry points prepared at the Health Department Laboratory. In one lot the points were charged with the serum exuding after having removed the pulp for the manufacture of glycerinated virus; the other lot was charged with serum after having only removed the top of the vesicle. No special difference was observed in the action of these two lots. Of twenty-one lots of glycerinated virus, seventeen gave perfect results. Of 571 insertions made with dry points from all sources, 168, or 33.6 per cent. were successful; while of the 315 insertions with glycerinated virus, 296, or 92.9 per cent. were successful. Several lots of points were tested from a firm whose method of manufacture is to charge the points with the pulp from the bottom of the vesicle. While some of these lots gave excellent results, others were decidedly poor.

The constitutional symptoms were also studied and compared in the various groups of cases. In 37 cases of successful vaccination done with the ivory points of the Health Department the symptoms were in no instance severe. Of the thirty-three successful vaccinations done with the dry points of private manufacture, in 1 case the constitutional symptoms were severe; in 3 they could be rated as marked, and in 12 only moderate. Of the 41 cases in which glycerinated virus was used, the symptoms were severe in 2, marked in 6 and moderate in 14 cases. The occurrence of severer constitutional symptoms with the glycerinated virus might be explained by the occurrence of large vesicles in a much larger proportion of cases, and also by the fact that green virus was used in every instance.

Eruptions were noted in 9 out of 282 cases, 5 of these being in children who had been vaccinated only with ivory points. Most of the eruptions were of a mild urticarial type. In 1 case the development of an eruption resembling varicella caused some uncertainty for a short time, but the fact that it was really varicella was proved by the occurrence of a typical attack of that disease in a sister.

The question of the rapidity of the healing process was also studied. Of 79 cases vaccinated with the points charged by the Health Department, 62 healed promptly, as against 108 out of 162 vaccinations with the glycerinated virus. Of the vaccinations done with the points, 8.8 healed slowly, and 17.2 of those done with the glycerinated virus were also rated as slow in healing. He was unable to say just how long the ivory points retained their efficiency under ordinary conditions, but in a former research he had proved that 100 per cent. of successful vaccinations could be obtained from the use of glycerinated virus that was, on an average, 7.7 months old.

TETANUS AND VACCINE VIRUS.

DR. J. H. HUDDLESTON gave in this paper an epitome of his bacteriological studies on this subject. As a precaution against tetanus infection, the calves used by the Health Department are fed on sterilized milk, but they were fed on hay before coming to the vaccine laboratory. He had examined the feces of twenty-five calves, using both cultures and inoculations into animals, and had found tetanus infection in only two. It was found that animal inoculation experiments were not so delicate as cultural tests for the detection of tetanus; moreover the viscosity of the glycerin interfered with the detection of a small contamination. Dr. Huddleston's conclusions were as follows: (1) The feces of calves fed on hay may contain tetanus germs; (2) these germs do not develop with glycerinated virus; (3) any form of vaccine virus—dry points or tubes of glycerinated virus—may be infected with tetanus, and may convey it, but no form of vaccine increases the amount; (4) cultural tests for the presence of tetanus germs are somewhat more delicate than animal tests; (5) inoculation by scarification is not a favorable method of inducing tetanus; (6) it is probable that the greatest precaution against the production of infected vaccine virus lies in the maximum, of cleanliness observed in a vaccine laboratory.

DR. FRANK P. FOSTER said that he was an opponent of glycerinated virus, and had been delighted with the presentation made by Dr. Rosenau. The remarkable figures presented in that paper showed only too plainly that there is a good deal of glycerinated vaccine in the market which is not what it is claimed to be. Evidently the ivory points used by Dr. Fielder were very poor, and the results which he obtained with glycerinated virus were such as should have been expected from good dry points. The speaker was of the opinion that better vaccine could be obtained from calves of six or eight months than from the younger animals. He was positive that properly prepared dry vaccine points, preserved in a proper manner, would not deteriorate in seven or eight months, but it was not enough to have these points dry spontaneously; they must be dessicated. If what had been referred to as "pulp" was the whitish pulpy layer beneath the epidermal portion of the pock, then he desired to say that he had always regarded this as abnormal, and had discarded it.

DR. J. J. KINYOUN, of the Marine Hospital Service, said that he had experimented some years ago regarding the collection of the lymph, and had found that while the first part was quite rich in vaccinal material, the last portion was comparatively weak in this respect. He had been one of the pioneers in the use of glycerinated virus, and was prepared to assert unhesitatingly that such vaccine is decidedly superior to the dry point. He had had the pleasure of inspecting the vaccine institute in Japan, and had been impressed with the thoroughness with which smallpox had been controlled in that country by the systematic vaccination and re-vaccination. Glycerinated vaccine did not seem to keep well in the Philippines, and hence it had to be used while still green. Many sore arms were produced by it, and there were only 60 per cent. of successful vaccinations.

DR. HUDDLESTON explained some of the remarkable differences in glycerinated virus observed by Dr. Rosenau on the ground that it was practically impossible to obtain a homogeneous vaccine emulsion, and that consequently individual tubes of the lymph must necessarily vary considerably in the number of vaccinal bodies found therein. There must be solid matter in all good vaccine lymph, for, if the serum were passed

through a filter which was capable of removing all solid particles, the resulting filtrate would be found wholly inert. The white pasty matter mentioned by Dr. Foster, was curetted away in the manufacture of glycerinated vaccine. Both dry points and glycerinated lymph had been known to retain their potency for over two years, but this did not represent the practical life of such vaccine. He was of the opinion that there was a difference in the action of dry points charged with lymph from cows and from calves.

DR. A. JACOBI declared that the statement that the clear lymph was wholly free from vaccinal power, and that for such action it was essential that the serum should contain solid matter was erroneous, and, what was more was opposed to all clinical experience. He then described the method once in vogue in New York City for collecting vaccine from arm to arm, and called attention to the fact that the physicians of those days were especially careful to take only the clear serum from the vesicle.

DR. ROSENAU said that it was evident from the discussion that some confusion had arisen from the assumption that all dry points were made in the same way. Some manufacturers charged their points with serum exuding from the old cross-hatch scarifications, while others mixed the lymph with glycerin, and after it had been kept for some weeks, mixed it with normal blood serum and allowed it to dry on the bone points. As the glycerinated pulp contained the epithelial layer, it was almost certain that it contained the maximum of vaccinal bodies.

DR. HUDDLESTON explained that he had seen humanized lymph collected in the manner described by Dr. Jacobi, but while this lymph appeared to the naked eye to be perfectly clear, it did, nevertheless, contain particles of solid matter, and it had been shown that when these particles were filtered out, the filtrate was no longer capable of producing vaccination.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON ORTHOPEDIC SURGERY.

Meeting of January 17, 1902.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

DR. W. R. TOWNSEND presented a baby four months old showing a mild type of webbed fingers. The webbed hand was smaller. The fore and middle fingers of one hand showed the web; no other congenital deformities present. No explanation was offered to account for the extreme smallness of the webbed hand.

HEMI-HYPERTROPHY OF THE BONES OF THE FACE AND HEAD.

DR. TOWNSEND also presented the case of a girl four years old. The right side of the face and head seemed larger. When first seen edematous tissue over the back of the head rendered it difficult to determine whether the bones were enlarged or not. The edema subsequently decreased and an increased size of the occipital and right parietal bones was manifest. The frontal bone was not involved, but the right inferior maxillary bone appeared enlarged. There was no history of syphilis; lower extremities were developed. The child had an enlarged abdomen and the deformity known as chicken-breast. The exact diagnosis was puzzling; the question was whether it was leontiasis or rachitis.

THE ASPIRATION TREATMENT OF ABSCESSSES.

A patient was also presented by Dr. Townsend—a boy eight years old, who, January 9, 1901, gave the history of hip disease of one year's duration. There was an abscess on the outer aspect of the thigh which was aspirated April 6th; it re-filled and was again aspirated on April 29th, and again on May 11th. The abscess did not recur. The case was presented to illustrate the successful treatment of these abscesses by aspiration. He said abscesses not interfering with application of braces and not burrowing and those not in a condition of mixed infection could be safely let alone or aspirated.

DR. NATHAN stated that after careful study of the literature of reported cases of leontiasis ossea, it did not appear that there was any agreement between the authorities reporting the cases

as to the definite lesions constituting this condition. All the reported cases differed from one another, and the case presented differed in many respects from all cases noted in the literature of the subject. He said that originally in the case presented there was a distinct cleft in the occipital bone. There was certainly some enlargement of the occipital bone as determined by measurements, but the hypertrophy of the soft parts over the lower maxilla made it difficult to measure that bone.

DR. V. P. GIBNEY, in discussing the case of abscess treated by aspiration, presented statistics from his private records of 23 cases treated by aspiration, 15 of which were cured. Of these 15, in 3 cases the aspiration was done once; in 4 cases, twice; in 4 cases, three times; in 4 cases, four or more times. Of the remaining 8, 3 were aspirated once, but the needle was large and caused leakage and sinus formation; 4 were aspirated twice; in 1 spontaneous opening took place a few days later. In all cases where cure failed there was no damage done by the aspiration.

DR. T. HALSTED MYERS expressed himself as in favor of non-operative treatment when the tubercular abscesses were not infected and were not interfering with the patient's health or threatening another joint. He had seen many cases cured without operative interference, and considered this best in dispensary practice; aspiration should be tried before more radical operative measures.

DR. R. H. SAYRE said that he had aspirated frequently, and sometimes secured good results, sometimes not. He had seen many cases get well without treatment, and cited one case of recurrent abscess of the thigh. If these abscesses could not be opened and kept surgically clean, he advised aspiration, and if this were not practicable, to let them alone.

THE CHAIRMAN asked Dr. Gibney if his statistics included any spinal abscesses.

DR. GIBNEY replied that they referred to abscesses connected with the hip only. He further stated that he had had cases of spontaneous disappearance, but that most of the psoas abscesses had been of long duration that had been given up under the expectant plan of treatment.

TORTICOLLIS.

DR. ROYAL WHITMAN presented the case of a boy twelve years of age, illustrating treatment of severe torticollis by the open incision with over-correction of the deformity. The operation was performed November 7, 1901, and resulted in correction of the deformity with no limitation of motion.

DR. J. P. FISKE asked Dr. Whitman what structures were cut.

DR. WHITMAN replied that all resistant structures were divided, the two insertions of the sterno-cleido-mastoid muscle and the cervical fascia being the most important.

DR. MYERS said the operation should be done early. He had seen cases left until the individual was fifteen years old, in which the sternal ends of the clavicles had been partially dislocated upward by the short sterno-cleido-mastoid; this was a difficult deformity to correct.

CONGENITAL ANTERIOR DISPLACEMENT OF THE HIP.

DR. WHITMAN presented a girl five years old illustrating congenital anterior displacement of the hip. He said ordinary methods of replacement were not successful in such cases, and whatever treatment was adopted it must be supplemented by osteotomy of the femur, otherwise the head of the bone would be displaced when the parallelism of the limbs was restored.

DR. FISKE said he thought the condition should be regarded as a superior displacement rather than anterior.

DR. WHITMAN replied that he understood the term congenital anterior displacement of the hip as indicating that the head of the femur was directed forward, lying below and to the outer side of the anterior superior spine.

CONGENITAL DISLOCATION OF THE HIP CURED BY THE LORENZ METHOD.

DR. WHITMAN also presented a child aged three years. The non-cutting operation had been performed one year previously. The plaster bandage was worn only seven months. This illustrated the fact that in certain cases of a favorable type cure might be accomplished in a short time—cure meaning both as to function and position. It was impossible to say, from observation, which hip had been originally displaced.

DOUBLE CONGENITAL HIP DISLOCATION TREATED BY THE OPEN METHOD.

DR. WHITMAN presented a patient, a girl seven years of age, upon whom he had operated by the open method three years previously. The patient now walks with but slight swaying of the body; the lordosis has completely disappeared, and the permanency of the cure is assured by the lapse of time; there is practically no restriction of normal motion.

THE CHAIRMAN asked if the two operations were performed at the same time, and if much acetabular scooping had been done.

DR. WHITMAN replied that the operations were performed about three weeks apart; the heads of the bones in this case were easily replaced and very little scooping was necessary; he considered one advantage of the scooping was that it caused adhesions which bound the bones more firmly and prevented subsequent displacement; the amount of scooping differed in different cases, some requiring a great deal, while in others simple arthrotomy might be sufficient. He further stated that after operation of this character the fixation bandage should be employed for many months, exercise and passive motion being useless until complete repair had taken place. In one instance he had fixed the limb for eight months, and at the end of that time the motion was far less restricted than in the majority of cases in which the restraint had been removed soon after the operation.

PHOCOMELIA.

DR. HENRY LING TAYLOR presented the case of a girl five and one-half years old, the second of four children; no developmental anomalies in the family. The mother stated that the feet presented, and that something was wrong with the shoulder at birth, which was rectified by the physician. When the child began to walk, at fourteen months, a slight lameness on the left side was noticed which has persisted. Motion at the hip was normal, but the left leg was two inches shorter than the right, the shortening confined to the femur; the trochanters were in normal position, and the classical signs of congenital dislocation and coxa vara were absent. He offered the diagnosis of congenital shortening of the left femur, confirmed by a skiagraph which showed the femur to be short and small.

The points of interest were the differential diagnosis, the slight lameness with considerable shortening, which was the rule when the joint motion and muscular power were good, and

the absence of true lateral curvature with a markedly sloping pelvis which was also the rule.

THE CHAIRMAN asked Dr. Taylor for the etymology of the word phocomelia.

DR. TAYLOR replied that it was derived from two Greek words meaning seal and limb, the combination being equivalent to flipper deformity. The term had reference to imperfect development in length of one or more of the long bones of the extremities.

DR. SAYRE considered that the term phocomelia should be restricted to the extreme cases in which the long bones were either absent or almost entirely so.

DR TAYLOR stated that Kummel, Klaussner and other authorities applied the term to such cases as the one presented.

WEBBED FINGERS (OPERATION).

DR. ALFRED TAYLOR presented a case of web fingers. The case was operated on recently, but some of the fingers were in a condition to show the results of the operation. The patient, a boy, was born with three fingers of each hand entirely webbed to the tips. On the middle and ring fingers of both hands the bases of the terminal phalanges had grown together; the little finger showed no bony union. The first operation was done in November on the little finger of the left hand. Later the entire condition of the right hand was relieved by operation. The method was to make an incision on the dorsum of one finger and palmar surface of the other, dissect up the flaps, using the opposite flaps to cover the fingers. In the little finger primary union was obtained. Instead of making a cross-cut at the base of the flap, or instead of making a V-shaped flap the incision was simply carried to the full distance up towards the web in each case; then it was found by suturing the edges together that the edge of one flap would obliquely cross the edge of the other crossing in opposite directions, the two edges meeting in the middle. This method worked very well.

DR. SAYRE read a paper entitled,

THE OPERATIVE TREATMENT OF WEBBED FINGERS, WITH PRESENTATION OF CASES.

DR. SAYRE reviewed briefly the classical methods of operation, and illustrated on a model his method of operation by

making a flap for one finger and grafting to cover the other, and taking an A-shaped flap from the dorsum of the hand, slipping it over and stitching it to the palm to form the bottom of the web. In methods which did not employ a graft from some other part of the body to cover the inner side of one finger, the effort was made to cover a defect with insufficient material, since the web connecting two contiguous fingers was much less extensive than the amount of skin which would cover the contiguous margins of those fingers normally and pass into the interdigital cleft. For demonstration a stuffed glove of one color was slipped inside one of a different color, the fingers of the latter being sewed together to represent webbing after the removal of the piece of kid lying on the contiguous sides of the webbed fingers.

DR. MYERS considered grafting a great improvement over other methods in these cases. Only the bottom of the cleft need be covered by a flap.

DR. V. P. GIBNEY stated that he had always used the Didot method of operation, but thought Dr. Sayre's plan an excellent one.

DR. SAYRE presented a patient upon whom he had operated for webbed fingers. The fingers were webbed to the tips and the phalanges united by bony union. The case illustrated the method of making a flap for one finger and using skin graft for the other.

Lumbar Puncture.—Quincke first performed the operation in 1890. Abadie describes (*Journal de Méd. de Bordeaux*, July 31, 1901,) the technique now carried out by Tuffier as the best method. He also relates the accidents which may occur with or after lumbar puncture, not as a rule serious. Only small quantities of cerebrospinal fluid should be withdrawn, and that should be allowed to flow slowly. Lumbar puncture is indicated in congenital hydrocephalus, brain tumor with pressure symptoms, meningitis, etc. As a therapeutic measure it has remained worthless, so far as regards recovery. As a palliative proceeding it is very useful. Headache, epilepsy, cerebral tumor, chorea, etc., have all been improved temporarily by it. Lately lumbar puncture has been supplemented by the injection of drugs, especially to produce anesthesia.—*Philadelphia Medical Journal.*

Current Literature.

DERMATOLOGY.

Wende, Grover William, and Degroat, Herman K.: Vegetating Dermatitis Developing During the Course of Infantile Eczema. (*Journal of Cutaneous and Genitourinary Diseases.* No. 233.)

A baby three weeks old developed an ordinary case of seborrheic eczema of the face and scalp. When it had reached the age of seven months pustules appeared, the bases of which enlarged to form tumor-like masses. By coalescence large lesions resulted, several of which were of the size of the child's fist. After removal of the epidermal covering of these growths the surface presented a vegetating character. A prompt cure followed the application of oleate of mercury, recovery being complete.

Other cases of the same sort are described. After comparison with numerous rare dermatoses described in literature the authors can find nothing exactly like their own cases. They leave the diagnosis and rationale in abeyance.

PATHOLOGY.

Baginsky and Sommerfeld: Bacteriological Examinations in Scarlet Fever. (*Archiv. f. Kinderhk.* Vol. xxxiii., Nos. 1 and 2.)

In all the cases examined, whether of the malignant type with hyperpyrexia or complicated or septic cases of longer duration, a streptococcus was found in the heart's blood, bone-marrow and all the viscera, also in the pharynx. It stained well with the aniline dyes, was positive to Gram, grew on all the ordinary culture media and upon several special ones, varied greatly in virulence and gave no agglutination reaction with the blood of scarlet fever patients. The serum of convalescents had no protective action. The sterile filtrate of cultures caused death when injected into rabbits, the animals' viscera proving sterile. The virulence of the cocci could not be increased by growing them in alkaline bouillon made from the organs of scarlet fever patients or other infants nor in media made from brain tissue.

MEDICINE.

Alsberg, G.: On Porencephaly. (*Arch. f. Kinderhk.* Vol. xxxiii., Nos. 1 and 2.)

Four cases are reported, in children aged three months to two years. In 2 there was double porencephaly, accompanied by external hydrocephalus in 1 case and by descending degeneration of the spinal cord in the other. One child, who died of descending croup, had had no symptoms referable to the nervous system; yet at the autopsy a cavity containing 200 c.c. of bloody fluid occupied the greater part of the left isle of Riel and part of the temporal and frontal lobes. Its outer wall was composed, in one place, of a membrane as thin as a spider's web, replacing the dura. In the other 3 cases there were tremors, spasms, contractures of the extremities and marked opisthotonus, with progressive loss of strength.

Porencephaly may be congenital or acquired, the latter differing from the former in that the cavity is not lined by the arachnoid membrane, and that its walls are formed by the medullary substance exposed in consequence of the defect in the cerebral hemisphere. Three theories have been advanced to explain the etiology of the condition: First, that porencephaly results from hydrocephalus of an earlier date, the thinning of a portion of the wall of the cerebral hemisphere being accompanied or not by dilatation of the lateral ventricle. Second, that disease of the brain mantle, secondarily combined with hydrocephalic conditions in intrauterine life, causes the lesion. Third, that it is dependent upon special conditions due to simple, mechanical disturbances of the circulation in the region supplied by the arteria fossæ Sylvii. This theory is supported by the fact that the porencephalic changes are situated in the neighborhood of that blood vessel. Another theory, that of traumatism, has been advanced, but it has little to uphold it.

The process may run its course in the earliest months of fetal life, or not until after birth. It is essentially a softening process, due to anemia in the region of the meningeal arteries, especially in that of the middle cerebral vessel. Resorption of the softened material causes cyst formation, and confluence of the smaller cysts form the porencephaly, bounded externally by the arachnoid membrane and internally by the ventricular ependyma. The defect is usually unilateral, but may be symmetrically bilateral or there may be a number of cysts.

The secondary changes in the nervous system and the clinical symptoms resulting from porencephaly will depend upon the seat and the extent of the lesion. The accompanying idiocy is probably due to the error of development which underlies the whole process.

Rocaz: Note on Two Cases of Congenital Stridor. (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 2.)

The first case was that of a two months old infant, whose stridor dated from birth. The father was alcoholic and an older child had died of bronchopneumonia after suffering from stridor since his birth. The patient's breathing was peculiar in that it was accompanied by a musical, inspiratory bruit which was continuous, but varied in intensity, being loudest during excitement and reduced to a minimum during sleep. The pharynx and lungs were normal. Laryngoscopic examination showed that the epiglottis was folded or rolled upon itself from without, inwardly. The stridor gradually diminished, without treatment, until at the age of fourteen months it appeared only when the child cried hard. The epiglottis gradually became unfolded.

In the second case (eight months old) intense stridor had been present since birth. Examination of the larynx increased the spasm markedly, but showed the same condition of the epiglottis as was present in the other child; in addition there was hypertrophy of the arytenoepiglottidean folds. Death was caused by bronchopneumonia. The mother was tuberculous.

The prognosis of these cases is grave because of the predisposition to pulmonary affections which congenital stridor causes.

Cerf, L.: Congenital Stridor. (*Arch. de Méd. des. Enf.* Vol. iv., No. 2.)

In an infant whose breathing was stridulous at birth, laryngoscopic examination revealed thickening of the free border of the epiglottis and a folding of the epiglottis upon itself. The laryngeal vestibule was a mere longitudinal slit which opened during expiration, but during inspiration the arytenoepiglottidean folds tended to come together over it. The stridor gradually diminished, and had disappeared in a month.

Besides cases like the above, in which congenital stridor is due to malformation of the laryngeal vestibule, there are others caused by adenoids, by tracheobronchial adenopathy and by hypertrophy of the thymus gland. Furthermore there is the

obstetrical laryngitis, analogous to ophthalmia neonatorum, and due to aspiration of septic discharges by premature respiration on the part of the child in the course of a slow labor. The stridor in these cases is apt to be permanent, and the cases are grave. Stridor of nervous origin has not been definitely proven, but spasm of the glottis plays a more or less important part in certain cases. Finally, since congenital stridor is merely a symptom, there may be mixed cases in which several of the usual etiological factors are present at the same time.

Cautley, Edmund: A Case of Pulmonary Regurgitation. (*The Lancet.* No. 4091.)

A girl aged fifteen years with a history of rheumatism and diphtheria was admitted to hospital with headache, vomiting, fever of 103.4°F. and general weakness. Upon auscultation a pulmonary regurgitating murmur was apparent. She made a rapid recovery and remained well for several months, when she had a similar attack, accompanied by pain in the joints and a purpuric eruption. After she was nearly over this second attack she had a profuse hemorrhage; this hemoptysis was followed by several others, following the last of which she died in collapse.

Autopsy revealed thickening and puckering of the pulmonary valves; hypertrophy and dilatation of the right heart; numerous infarctions of the lungs; beginning nutmeg liver.

Bosanquet, W. Cecil: A Case of Rheumatic Urticaria with Pigmentation. (*British Journal of Dermatology.* No. 160.)

A girl eight years old who had a rheumatic history began to suffer from recurrent urticaria which coincided with exacerbations of the older trouble in the joints. The hives, upon their disappearance, left stains.

At the beginning of the observation period the patient exhibited a crop of red urticarial wheals mixed with a few white ones. The color of the former did not wholly disappear on pressure, indicating deposit of pigment. Numerous brown stains in the midst of the recent lesions indicated the presence of former wheals.

All the phenomenon disappeared under the salicylate of sodium, but when this was discontinued both the joint lesions and urticaria reappeared and were again controlled as at first.

The cutaneous lesions were regarded as due to serous effusion into the corium; the pigmentation was the result of a diapedesis of red corpuscles into the skin.

Wheeler, David E.: A Case of Hydrencephalocele. (*The New York Medical Journal*. No. 1209.)

In this case the presenting head of the infant was followed by a large tumor connected therewith. The infant was found to be entirely normal save for the tumor which was attached to the posterior fontanelle. This mass measured twelve inches in circumference, was covered with integument and fluctuates (fluctuation not transmitted to large fontanelle). The baby, who weighed at birth eight pounds, began to lose steadily, while the tumor increased in size. Death took place on the twenty-fifth day under symptoms of dyspnea and cyanosis.

At the autopsy the sinuses and brain appeared normal. The pedicles of the tumor entered the skull to communicate with the lateral ventricle.

Büchler, A. T.: A Case of Initial Lesion of Syphilis at the Heel. (*Journal of Cutaneous and Genitourinary Diseases*. No. 234.)

A baby seventeen months old while under treatment for prickly heat was found to have a peculiar lesion on the heel, with inguinal adenopathy. The presence of a papular syphilide on the mother confirmed the diagnosis of chancre. Two weeks later the infant developed secondary syphilis. The mode of transmission was, perhaps, an excoriated papule of the prickly heat rash which had come in contact with moist condylomatous patches in the mother's groins while sleeping in the same bed.

Alessandrello, Giovanni: Mechanism and Production of Parrot's Athrepsia. (*La Pediatria*. Anno x., No. 1.)

Original investigations at Prof. Fede's clinic have led to the conviction that the principal causal element is an intoxication, essentially chronic, but progressive and fatal, which arises in the gastrointestinal tract.

The nutrient which enters the alimentary canal (such as cow's milk, unsterilized or altered, or in too great quantity, and solid food given prematurely) must undergo stagnation by reason of the insufficiency of the digestive juices in the early months of life. Bacteria of fermentation and putrefaction then attack it with the formation of chemical and bacteriological poisons. As these are absorbed, the first barriers to be traversed before the blood is reached are the intestinal epithelia and the liver, the resistance of which is slowly overcome. The poisons once in the circulation gradually weaken and impair the function of all

the vital structures. We do not know yet of what these intestinal poisons consist, although we are aware that many toxic substances are formed in the alimentary tract—indol, skatol, phenol, cresol, ammonia—as well as others, the product of bacteria.

Heidingsfeld, M. L.: Vaccina Generalisata with Report of a Case. (*Journal of Cutaneous and Genitourinary Diseases.* No. 233.)

A girl, aged five years, was vaccinated April 10th, and with complete success; but on May 2d a bullous eruption appeared on her ankles and wrists. The subjacent skin was normal. The lesions were evolved in crops and extended up the limbs, at the same time increasing greatly in size. In the course of time the entire integument was involved in the eruption. The entire duration of the malady, which ended in complete recovery, was three months. The author regrets that he made no inoculation experiments with the serum from the bullæ, but holds that this test is not necessary to establish the diagnosis.

Mayer, H. N.: The Psychoses of Chorea. (*The Journal of the American Medical Association.* Vol. xxxvii., No. 21.)

In the majority of cases of chorea a well-marked alteration of the character and mentality may be noted, usually preceding, by some weeks, the onset of the choreic movements. In a considerable number of cases distinct hallucinatory phenomena are present, not, however, of sufficient severity to merit being classed as a distinct psychosis. The mental disturbance in chorea usually comes on after choreic movements, but it may precede them. The type is usually maniacal, though it may occasionally be melancholic or present the character of an acute delirium. Mental disturbances are rarely observed before the twelfth year. Chorea which are accompanied by mental disturbance later in life, are almost always accompanied by organic changes in the central nervous system. The prognosis is favorable when the mental disturbance complicates the simple, acute chorea of Sydenham.

Andard, M. E.: Riga's Disease. (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 2.)

Two cases are reported in infants thirteen months old, cured by excision of the ulcer with scissors. The disease is especially common in Italy, and is characterized by the appearance of

vegetations covered with a diphtheritic exudate on the frenum of the tongue. Microscopically 1 case showed hyperplasia of the mucosa epithelium, with round cell infiltration and abrasion of the epithelium in the centre of the ulcerated region.

It is a rare disease, appearing usually between the ages of nine and fifteen months; unhygienic conditions and bad feeding apparently are predisposing factors; most observers consider it non-contagious. Among the local causes are lack of cleanliness of the mouth, the eruption of the incisor teeth and the habit of protruding the tongue. Pathologically it is an inflammatory hypertrophy of the mucous membrane, with the production of fibrinous exudation. The onset is usually insidious, salivation being the first symptom; it becomes very marked. The lesion on the lingual frenum is hard and cauliflower-like; it may reach 1 to 1½ cm. in diameter. The lymph nodes are not affected. In the benign form there are no general symptoms. The lesion may co-exist with a gastroenteric catarrh, which modifies the prognosis and is often fatal. The duration of Riga's disease may be two weeks or twenty months. The benign form is curable, if well treated. The treatment should be prophylactic (cleanliness); but if the disease develops in spite of care, silver nitrate or tincture of iodin may be applied locally, and incision followed by cauterization practised if necessary.

Fraenkel, E.: On Necrotic Inflammations of the Esophagus and Stomach in the Course of Scarlet Fever and in the So-called Acute Infectious Phlegmon of the Pharynx. (*Virchow's Archiv.* Vol. clxvii., No. 1.)

In a four-year-old boy who died after an illness of two weeks with scarlet fever, the autopsy showed ulceration of the esophagus throughout its entire length, both mucosa and submucosa being involved, and extension of the process over the entire inner surface of the stomach, sharply limited at the pylorus. The intestines were normal. A second fatal case of scarlet fever, one and a half years old, had two necrotic areas on the soft palate, and two ulcers in the esophagus, while the lowest 5 cm. of that organ were black in color and entirely denuded of mucosa and submucosa.

Microscopic examination proved the necrosis to be due to the presence of streptococci, and in every way analogous to other lesions of the pharyngeal structures in scarlatina, especially of the tonsils and soft palate. There was no connection

with diphtheria. The cocci were not brought to the esophagus and stomach through the blood current, but had penetrated from the internal surface. The older child had complained of abdominal pain, probably due to the gastric lesion; the esophagus involvement caused no symptoms.

The early stage of the process was illustrated by the case of a five-year-old girl who died during a scarlet fever relapse. The gastric mucosa showed round areas, some rather roughened, others smooth. Streptococci were cultivated from them, and microscopic examination showed them to be composed of areas of round cell infiltration limited to the uppermost portion of the mucosa; no necrosis had, as yet, occurred. Streptococci were found penetrating the mucosa from within outwards, and the lymphatics in the edematous submucosa were crowded, even thrombosed, with them; the blood vessels did not contain any.

Whitfield, A.: On the Nature of the Disease Known as Erythema Induratum Scrofulosorum. (*American Journal of the Medical Sciences.* Vol. cxxii., No. 7.)

From the observation of 2 cases, 1 in a girl of fourteen years and 1 in a woman of thirty-seven, the author concludes that there are at least two forms of this disease. One of these is essentially indolent, chiefly affects adolescent girls, and is in some cases undoubtedly caused by the living tubercle bacillus. In the author's case the ulcers were situated on the back of the legs and on the dorsa of both feet. Two were excised, and examined microscopically as well as inoculated into guinea-pigs. While the structure was that of tubercle (epithelioid cells and some giant cells) lying deep in the subcutaneous tissue, the inoculated animals did not develop tuberculosis. This may be due to the fact that, as the lesions are non-progressive, dead tubercle bacilli may cause them. The girl was completely cured in forty-five days, under treatment with thyroid colloid in half-grain doses, and the applications of yellow oxide of mercury ointment to the ulcers.

The second variety affects women of middle age, usually those who suffer from some form of cardiac weakness; it is more acute, more amenable to treatment by rest in bed, and has nothing to do with the tuberculous process.

SURGERY.

Howell, John T.: Report of a Successful Case of Gastrotomy in an Infant. (*Medical Record.* No. 1635.)

The baby, nine months old, swallowed an open safety-pin. The fluoroscope was of no assistance in locating the foreign body. Nourishment was refused, which with vomiting of bloody mucus made up the clinical picture of the case. Gastrotomy was performed, and the pin was located in the stomach before the organ was incised, so that extraction was effected through a minimum opening, the stomach having been drawn out in part through the external incision. Recovery was uneventful. The baby was nourished by the rectum for fifty-four hours.

Porter, C. A.: Six Cases of Operation for Cleft Palate. (*The Boston Medical and Surgical Journal.* Vol. cxlvii., No. 6.)

Five of the 6 cases were cured. The failure was in a baby nine months old. In another infant, aged eighteen months, a second operation succeeded after one total failure. No plates were used. In very young children the arms are confined by swathing. The nostrils are occluded, so that mouth-breathing becomes a necessity, and the new palate is thereby kept dry. As the patients would otherwise be extremely fretful under this management they are quieted with bromids, or chloral, or opiates. Feeding for the first three or four days must be by the rectum. If enlarged tonsils or adenoids are present they are removed before uranoplasty is attempted.

The operation itself is done in Rose's position. The entire cleft is denuded. The lateral incisions run from the canine teeth back to the expansion of the tensor palati. Flaps of mucous membrane and periosteum are now turned back, including a portion of the nasal side of the cleft; these are united by not over six sutures of silk previously soaked in balsam of Peru.

Bottomley, John T.: A Consideration of 28 Cases of Tuberculous Peritonitis at the Boston City Hospital, with Particular Reference to the Results of Operative Treatment. (*American Medicine.* Vol. iii., No. 7.)

Of the 28 cases 11 died, 11 recovered, 2 were improved, while the remainder could not be traced. Nineteen cases were of the ascitic type, and of these 8 recovered, 7 died, 1 was improved and the rest could not be traced. Seven cases were of

the fibrous type; the percentage of recoveries was the same here as in the ascitic type. The remaining 2 cases were of the ulcerous variety; 1 died, and the other cannot be traced.

The entire series was operated upon by laparotomy. Six cases were first tapped, but the fluid regathered at once.

The author's experience may be summarized as follows: Relative recovery (*i.e.*, well one year after operation) should result in from 30 to 40 per cent. of all cases. In fatal cases death usually results in a few months after operation.

Family history plays no part; previous inflammation of abdominal viscera may or may not.

Operation almost always gives immediate relief, even in cases which terminate fatally. If no benefit whatever results from intervention, the prognosis is very poor. Inferences as to ultimate results must be made with great caution.

Jopson, J. H., and White, C. Y.: Sarcoma of the Large Intestine. (*American Journal of the Medical Sciences*. Vol. cxxii., No. 7.)

The case reported is that of a boy four years old, in whom dyspeptic symptoms and the presence of a rather hard mass, apparently filling up the umbilical and epigastric regions and not continuous with liver, spleen, or kidneys, gave rise to the diagnosis either of tuberculous peritonitis or of some form of abdominal tumor. An attack of measles made operation impossible, and the child died of asthenia two months later, in a state of extreme emaciation. The autopsy demonstrated a sarcoma of the cecum and ascending colon, with metastases in the peritoneum, mesenteric lymph nodes, kidneys, liver and spleen. Microscopically the sarcoma was of the round cell variety.

Twenty-one other cases were collected from the literature, of which 6 were under ten years of age. Ten of the 22 cases were operated upon, with a mortality of 50 per cent. Without operation the prognosis is absolutely bad, about five and a half months being the average duration of life. In the case reported in the paper the duration of the disease was about nine or ten months.

Raymond, George A.: The Treatment of Congenital Cleft Palate by Mechanical Appliances. (*The Boston Medical and Surgical Journal*. Vol. cxlvi., No. 6.)

He never has known of a case in which perfect speech resulted from surgical intervention. Mechanical devices can be

worn with perfect tolerance for years; they may be compared in this respect with a set of false teeth.

One patient, eight years old when fitted, has worn her apparatus for seven years. Her speech is almost perfect.

A surgical palate, made in early childhood, is worse when adult life is reached than if no operation had ever been performed.

Mouchet and Audara: *Congenital Atrophy of the Sigmoid Flexure and Rectum, with Rectal Ampulla and a Normally-placed but Imperforate Anus.* (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 2.)

A male child, born at term, began to vomit fecal matter on the second day after birth. Examination revealed an imperforate anus. A perineal operation was performed, and the rectal ampulla found; it was stitched to the edge of the perineal wound and then incised. The lining appeared to be normal intestinal mucosa, but no meconium was present. Four hours later the infant died. At the autopsy the large intestine was found dilated to the end of the descending colon, and the remaining 15 cm. were atrophied to a diameter of 5 or 6 mm.; they were still permeable, though empty. The dilated lower end was separated from the anus by a thin membrane. No exactly similar case has been described.

Alsb erg and Heimann: *On the Indications for the Operative Treatment of Diphtheritic Stenosis of the Larynx.* (*Archiv. f. Kinderhk.* Vol. xxxiii., No. 1 and 2.)

Of 244 intubated cases, 10 per cent. died; the mortality among infants under one year old was 60 per cent., and in the second year 13. 9 per cent.; between the ages of two and twelve it was only 6. 9 per cent. The causes for the bad prognosis in infancy are: Delicacy of the tissues and of the entire organism, increased difficulty in feeding, predisposition to pneumonia, and the fact that the small tubes are more easily clogged. The average duration of the intubation was from two to four days. Secondary intubation became necessary in 4 cases of primary tracheotomy, and in 14 of secondary tracheotomy. Ten of the 18 secondary intubations were successful.

In mild and medium degrees of laryngeal stenosis operative interference should be prevented, if possible, by means of anti-toxin and the use of the spray. Primary intubation is indicated in all severe cases in which bloody interference can be

prevented. Primary tracheotomy is indicated: In asphyxia and collapse, unresolved pneumonia, severe cardiac disease, paralysis of the diaphragm and palate; and with marked anatomical changes in the pharynx or necrosis of the same. Secondary tracheotomy is indicated: When the symptoms of stenosis continue after intubation, the tube not being clogged; when pneumonia appears, or the palate and diaphragm become paralyzed. Intubation is not to be recommended in infancy.

HYGIENE AND THERAPEUTICS.

Farreras, Ramon Sanquet: *Injections of Physiological Bovine Serum in the Treatment of Chorea.* (*Archivos de Ginecología, Obstetricia y Pediatría.* Año xv., No. 2.)

A nine-year-old boy with typical Sydenham's chorea of a very severe character entered the serotherapy clinic of the Hospital for Poor Children, Barcelona, where he received a series of ten injections of ordinary serum—30 c.c. each—without any apparent benefit. Bovine physiological serum was then substituted in doses of 5 c.c. every other day, increased later to 10 c.c. Recovery, which had begun under the smaller dose, rapidly went to a completion.

Kinneir, F. W. E.: *The Thermocautery versus Suprarenal Extract.* (*The British Medical Journal.* No. 2149.)

A boy aged ten, one of a family of bleeders, bit his tongue as a result of a fall, and all attempts at controlling the hemorrhage were futile. The wound was packed with the powdered suprarenal extract, and collodion painted over all. Some days later a secondary hemorrhage developed in the wound, the patient nearly bleeding to death. This time the wound was thoroughly burned with the thermocautery and with the best results.

Ransom, W. B.: *Should Milk be Boiled.* (*The British Medical Journal.* No. 2147.)

The conclusion reached is that no substantial evidence exists to show that milk raised to the boiling point for ten or fifteen minutes suffers any diminution of its nutrient qualities. Neither is it probable that it can cause infantile scurvy if used within twenty-four hours of boiling. The same is true of pasteurized milk. While neither of these processes renders milk absolutely sterile, they are known to destroy the majority of pathogenic microbes. The spores which are not destroyed

could hardly have time to mature if the milk is kept in a cool place and drunk within twelve hours after boiling. Boiling the milk outright is more available than pasteurizing and at the same time more efficacious. During the hot months the milk should be boiled for half-an-hour, and reboiled if not consumed within a few hours, in order to destroy the very resistant spores of the bacillus sporogenes enteriditis.

Chapin, Charles V.: One Way to Fight Contagion. (*Medical News.* No. 152.)

The best and most auspicious endeavors to suppress contagious diseases are often succeeded by a most discouraging increase in the prevalence of the latter. This has been somewhat the case in Boston of late years, and the impression is naturally obtained that the main avenues of propagation have been overlooked. The sources of infection must lie in unsuspected individuals who are but slightly ill or perhaps in apparent health. Every individual must be taught how to protect himself, and this is best done through school instruction, imparted first to the teachers and then to the scholars. Each child should be taught to be particular about using the pencils, sponges, etc., of his mates. Books are especially dangerous as sources of contagion.

The city of Providence has actually begun this sort of teaching in its common schools. The children are warned especially against placing articles in the mouth, "swapping" articles with one another, spitting, wetting the fingers, etc.

Howard, H. C.: Formaldehyd in the Treatment of Germicidal Diseases. (*Fort Wayne Medical Journal Magazine.* Vol. xxii., No. 1.)

The patient should be placed in a small bed-room with a closed door, and the formalin lamp should be burning most of the time. The chamber should be ventilated occasionally and the lamp turned low at intervals. Patients appear to tolerate the fumes of formaldehyd much better than do healthy individuals, and state that they obtain comfort and relief therefrom. The same vapor appears to be equally serviceable as a prophylactic to the other children in an infected house. Good results were obtained in severe cases of measles and scarlatina, the treatment being continued in some degree until the end of the desquamative period.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

MAY, 1902.

[No. 5.

Original Communications.

THE PROGRESSIVE PRINCIPLE IN RATIONAL INFANT FEEDING.*

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The plan to adapt its food to the needs of the growing infant, with a reasonable degree of accuracy, has now been before the medical profession in this country since 1882, when Meigs, following the work of Biedert ten years previously, taught the importance of adjustment by his study of woman's milk and the adaptation of an artificial mixture to substitute feeding; and, when ten years later in 1890, Rotch awoke the profession from its indifference and gave the first impetus to a general interest in the study of this important subject.

The original contributions of Rotch to percentage adjustment, laboratory modification and prescription feeding have been the valuable starting point from which all recent advance in this subject has proceeded. The fact that methods employed in the laboratory were not available for general use, made it necessary that others should devise ways and means by which we might reach at least approximately the high ground taken by Rotch in his teachings.

Later, through the writings of Holt, Chapin, Seibert and others, rapid strides were made in the advance of our knowledge of this difficult subject by various methods designed to facilitate the accurate modification of milk.

Percentage feeding, however, was still beyond the ken of the great mass of physicians and consequently beyond the reach

* Read before the Section on Pediatrics, the New York Academy of Medicine, April 10, 1902.

of all save the favored few of the great mass of infants whom these teachings were designed to benefit.

Finally, the door was opened to those who were willing to labor in order to succeed, by the publication, in 1897, of Westcott's method for deriving percentage formulæ by accurate percentage calculation.

Following this, several methods of calculation were suggested, one by Baner, one by Coit, and a modification of Westcott's system by Taylor, whereby by various combinations, more or less accurate, of the percentage of fat, proteids and sugar could be determined in a mixture.

These systems of modification were supposed to be made available for the so-called home modification of milk—and in the absence of the milk laboratory, also for the guidance of those who required accurate milk adjustment for the private case, or for large numbers of delicate infants lodged in hospitals and other institutions.

What use have we made of the foregoing facts? Thirty years have elapsed since the scientific study of this subject began, and it is probably true that in no department of medical work is so little general interest manifested to-day as in that of infant feeding.

If 50 per cent. of the race are to be fed by artificial methods, then there is urgent need that not only pediatricians, but every general practitioner should be familiar with infant dietetics, milk modification, and the adaptation of suitable mixtures to the individual case.

It is probably true that the majority of physicians still carry in their pocket a recipe for a recommended milk mixture which they offer to every infant of every age or stage of development, and, in the event of failure, conclude that the child cannot take milk and descend to some one of the horde of manufactured substitutes.

If it is not surprising that no awakening occurred for years after Meigs taught its importance, it certainly is unfortunate that after the subject was elucidated and classified by Rotch and his coworkers, a decade more should elapse and still the rank and file of the profession remain unprepared for the work they are called upon to perform.

An explanation for this state of things must be found, not in a lack of literature, but we think in the fact that most of the

methods hitherto taught require too much reliance upon skilled labor back of the physician, and that in the effort to make them available for individual cases, the element of flexibility so essential to the progress and well-being of the little patients, is lost.

That the physician should be able to think in percentages, construct his own formulæ, reduce them to simple terms and transfer the progressive modification of the mixtures to the caretaker are absolutely necessary if he would do good work among the larger number of his feeding cases.

Therefore simpler methods of percentage feeding are demanded by the profession to-day; methods yielding fairly accurate results, as regards the percentage calculation of constituent elements, the construction of formulæ and their conversion, the combination of materials used, and the continual advancement from minimum to maximum capacities in their application to individual cases.

The average doctor looks upon scientific infant feeding as a gigantic undertaking and is repelled by his conception of its magnitude. As the knight of old looked upon the golden fleece guarded by a great dragon, so he contemplates the maze of chemical and physiological facts, and algebraic equations connected with percentage determinations, and their relation to the nutrition of the young. There is no gainsaying the fact, that an enormous amount of labor entails upon those who master this intricate subject, and it would seem therefore if the race is to be fed, it is incumbent upon those who have by labor killed the dragon for themselves, to kill it in a metaphorical sense for others by simplifying their methods, that the profession and indirectly the children of the masses may secure the coveted golden fleece.

The problem before us is a difficult one. Market-milk is not a constant quantity; its variations in fat are as wide as the distribution of breed in the milk herds from which we derive the basal product, whole milk. The constancy of the fat in the cream to be employed is quite as essential to success in percentage feeding as standard solutions are to volumetric chemical analysis. Therefore every physician must adopt some method by which he can obtain and determine in the milk a uniform standard for his modifications, as milk cannot be assumed to be an average product. By some plan of systematic chemical reports for a given supply the physician should be able to get his

standards of super-fatted milk, moreover these materials should be obtained with the least possible disturbance of their proximate principles, especially the milk-fat, for it is the conviction of good observers that the violent mechanical agitation of milk by the centrifuge is detrimental to it.

In 1897 at a meeting in this place, I suggested that it would greatly simplify the use of milk for this purpose if a uniform super-fatted gravity cream could be delivered by dairymen which would contain 10 per cent. of fat, to be called decimal cream. Following this in 1898 I suggested a system of milk modification, designated the decimal system, and designed to simplify the use of decimal cream for modifications and having reference to approximate percentage composition in the ultimate mixtures. This system employed in its calculations but one mathematical principle—multiplication; the working formula required besides water, a 10 per cent. fat cream (no. 1 by diluting gravity cream with half its bulk of water, no. 2 a decimal top milk) and a 10 per cent. sugar solution—the proteids estimated by a table (*ARCHIVES OF PEDIATRICS*, May, 1898) showed the proteid and sugar value of the cream employed; the proteids being increased if necessary with a fat-free skimmed milk or whey.

By this method working formulæ are calculated by the quantity of food desired expressed in ounces, reduced to cubic centimeters by multiplying by thirty, this product in turn multiplied by tenths determines the quantity of standard cream or sugar solution for the required percentage of fat or sugar, the formula being re-converted into fluid ounces if desired. This system is used by many physicians and some institutions, but its chief advantage consists in the fact that approximate percentage modification can be taught to the nurse or the mother.

The chief point to be insisted upon in any system of accurate or approximate feeding is the known composition of the standard materials. For most practical purposes, the fat and sugar standards are the only ones the percentage composition of which need be known, for as will be shown later, the mixed proteids or lactalbumin may be gradually added in a progressive formula designed for advance from a minimum to a maximum point in each individual case.

The merits of any system of modification depend upon its treatment of the constituents of the finished food, its percent-

age adjustment, its flexibility, the readiness with which physicians adopt and employ it and the ease with which its scientific terms may be converted into simple ones.

That the foregoing is perfectly consonant with the requirements of maternal feeding there can be no question. There is no fixed and unchangeable composition in woman's milk. The percentages are not uniformly accurate for fat and proteids, but they are approximate, and there is every reason to believe that the secretion is progressive in quality as well as in quantity during the normal period of lactation. Woman's milk is furthermore adjusted to the prescription written by nature, so that the blond offspring gets one modification, the brunette another, and the colored baby still another.

This leads me to the consideration of a principle in infant feeding which involves the idea of progressive advance, not only as regards the capacity of the infant for bulk, but also for increasing nutritive strength in the mixtures. This adds one more designation to the long list of qualifying terms as applied to methods of infant feeding, but the principle of progression is not new, for it has always been employed by those who have made a comprehensive study of the subject.

It is interesting to note that Biedert, thirty years ago, taught the importance of progressive advance in the strength of artificial mixtures, and in order that the pioneer workers in the field may have their due credit, it is well to remember that the younger Meigs mentions the use of whey in cream mixtures for the purpose of augmenting the noncoagulable albuminoids.

Progressive infant feeding has its chief justification in the fact that the great majority of the cases we are called upon to feed are not well but sick. The chief fault of most of the authors on this subject is that they write for well babies, as may be seen by referring to the published tables and feeding charts. Moreover every baby is a law to itself with regard to its food, so that every case must be individualized with reference to its physiological and its chemical relations in order to fulfill the demands of uniform growth.

It is essential to the well-being of our feeding cases that they should be seen at least once every month, even though they are well, in order that a new set of formulæ may be written.

When the case is suffering from some form of malnutrition, daily supervision is often necessary in order to meet the fluctuations in the child's condition.

Many feeding cases go beyond our observation simply because the mother does not see the necessity of advance in the feeding, and these are more important because of the insidious consequences of neglect.

The progressive principle is opposed to the stereotyped and fixed methods of feeding still so prevalent among certain classes: The baby sick or well is a fixed quantity for the time being and therefore in order to fulfill Northrup's desideratum of "feedings to fit," the food must be the adjustable end of the combination, and as the baby advances in growth or capacity for food, the same principle obtains.

The majority of cases we are called upon to treat are suffering from some form of starvation with its corresponding degree of fat, proteid or sugar incapacity, growing out of the failure to employ these functions. It should be borne in mind also, that this condition results quite as often from poor and insufficient nursing as it does from the very common use of condensed milk or dextrinized, malted or cereal foods. It is therefore often necessary that we begin our feeding with very low percentages and gradually strengthen the mixture; the point of beginning determined of course by the digestive capacity of the child, and a careful inquiry into the antecedents which are usually many and varied.

Cases are often brought to us which at one or two months were given a mixture suitable for them at the time, and at six or eight months are found taking the same food, and presenting a very defective nutrition; or, in like manner, a child of ten months may be found subsisting on a four months' diet. Such patients should not go beyond our observation long without some provision for advancing their food, if possible by a progressive series in the formula.

Likewise we encounter a class which are suffering from fat, proteid or starch indigestion due to an excess of these elements in its food, or the employment of an injurious combination of materials entirely foreign to an infant's diet. The defect must be discovered, a temporary adjustment made with reference to the troublesome elements and the weakened function encour-

aged to gradually increase its capacity and finally perform its maximum work.

In the feeding of premature infants it is all important that caution be enjoined with reference to the use of artificial food. The most delicate management is necessary in order to establish their digestion, careful progressive formulæ must be prepared, and it should be borne in mind that very slight variations from correct percentages will often defeat our object and destroy the child.

Infant dietetics, while it rests upon a scientific basis, is yet very largely an art, and engages all the mental resources as well as the judgment of the physician in his efforts not to underfeed or overseed his patients. In order to accomplish his best results he must have the coöperation of the caretaker, and in difficult cases he must himself direct and establish the order for management and care.

In progressive feeding, there are two points of procedure: first, the present capacities of the infant, second, its normal capacities if it were well and had attained its maximum growth. These two points are essential because they represent the possible dietetic limitations of our patient. When these have been determined two formulas may be prepared with these boundaries in view, one for the starting point, the other representing the line toward which we should steadily advance.

The formula required for the condition in which we find our patient being determined, it must next be demonstrated that the mixture is well borne. The formula for the maximum mixture being determined it greatly facilitates the successful management of the case to arrange the working formula in a series, with the one at the left, the other at the right of the chart and inserting intermediate figures for advancing the proportions of the changeable ingredients and diminishing the diluents until the maximum formula is reached.

In the case of a normal infant the progressive formula arranged in like manner should of course have reference only to the usual advance and growth of the period for which it is given. This progression should be steady from birth to weaning, and be under the periodical supervision of the physician.

The subjoined formulæ will serve to illustrate how the finer

percentage calculations may be worked out, and how a progressive series may be written:

STANDARD MATERIALS.

DECIMAL SUGAR SOLUTION consists of a solution of sugar of milk in the proportion of one ounce by weight in sufficient hot water to complete ten fluid ounces.

DECIMAL CREAM No. 1.—The top six ounces from one quart of fifteen-hour bottled milk, plus water three fluid ounces. This mixture equals nine fluid ounces, and contains 10 per cent. of fat. In using Cream No. 1 it is sufficiently accurate to, estimate the proteids and sugar carried by it as one-quarter the fat.

DECIMAL CREAM No. 2.—The top eleven ounces from one quart of fifteen-hour bottled milk. This top milk contains 10 per cent. of fat. In using Cream No. 2 it is sufficiently accurate to estimate the proteids carried by it as one-third the fat, and the sugar as one-half the fat.

PROGRESSIVE FORMULÆ.

CASE I.

PREMATURE INFANT.

BORN AT 7 MONTHS.

INCUBATOR.

Interval of feeding, $1\frac{1}{2}$ hours. No. of feedings, 10. Amount at feeding, $\frac{1}{4}$ oz.—2 fl. ozs.

INITIAL FORMULA: Lactose, 4 per cent.; quantity, 20 fl. ozs.
REQUIRED P. C.

Sugar Sol., $\left\{ \begin{array}{l} F. 4.00 \\ 10 \text{ per cent.} \end{array} \right\} q. 20 \times 30 = 600 \text{ c.c.} \times .4 = 240 \text{ c.c.} \div 30 = 8 \text{ fl. ozs.}$

MAXIMUM FORMULA: Fat, 2 p. c.; Proteids 0.5 p. c.; Lactose, 4.5 p. c.; quantity, 20 fl. ozs.

REQUIRED P. C.

Cream, $\left\{ \begin{array}{l} F. 2.00 \\ 10 \text{ per cent.} \end{array} \right\} q. 20 \times 30 = 600 \text{ c.c.} \times .2 = 120 \text{ c.c.} \div 30 = 4 \text{ fl. ozs.}$
 $\left\{ \begin{array}{l} P. 0.50 \\ S. 0.50 \end{array} \right\}$

Sugar Sol., $\left\{ \begin{array}{l} S. 4.00 \\ 10 \text{ per cent.} \end{array} \right\} q. 20 \times 30 = 600 \text{ c.c.} \times .4 = 240 \text{ c.c.} \div 30 = 8 \text{ fl. ozs.}$

WORKING FORMULA: (fl. ozs.)

Advance one step in the series every 5 days during the month.

Decimal Cream, (No. 1.) 0	$\frac{1}{2}$	1	2	3	4
Decimal Sugar Sol., 8	8	8	8	8	8
Plain Boiled Water, 12	$11\frac{1}{2}$	11	10	9	8
(Alkalinized.)		20—fl. ozs.			

Records of Weight.

FORMULA No. 2.

CASE II.

FULL TERM INFANT. WEIGHT $7\frac{3}{4}$ LBS. ENTIRE FEEDING.
 Interval of feeding, 2 hours. No. of feedings, 10. Amount at feeding, $1-2\frac{1}{2}$ ozs.

INITIAL FORMULA: Fat, 2 p. c.; Proteids, 0.5 p. c.; Lactose, 5 p. c.; quantity 25 fl. ozs.

REQUIRED P. C.

Cream, $\begin{cases} F. 2.00 \\ P. 0.50 \\ S. 0.50 \end{cases}$ q. $25 \times 30 = 750$ c.c. $\times .25 = 187$ c.c. $\div 30 = 6\frac{1}{4}$ fl. ozs.
 10 per cent.

Sugar Sol., $\begin{cases} S. 4.50 \\ P. 0.50 \end{cases}$ q. $25 \times 30 = 750$ c.c. $\times .45 = 337$ c.c. $\div 30 = 11\frac{1}{4}$ fl. ozs.
 10 per cent.

MAXIMUM FORMULA: Fat, 2.50 p. c.; Proteids, 0.6 p. c.; Lactose, 6 p. c.; quantity 25 oz.

REQUIRED P. C.

Cream, $\begin{cases} F. 2.50 \\ P. 0.60 \\ S. 0.70 \end{cases}$ q. $25 \times 30 = 750$ c.c. $\times .25 = 187$ c.c. $\div 30 = 6\frac{1}{4}$ fl. ozs.
 10 per cent.

Sugar Sol., $\begin{cases} S. 5.30 \\ P. 0.60 \end{cases}$ q. $25 \times 30 = 750$ c.c. $\times .53 = 397$ c.c. $\div 30 = 13\frac{1}{4}$ fl. ozs.
 10 per cent.

WORKING FORMULA: (fl. ozs.)

Advance one step every 5 days during the month.

Decimal Cream, (No. 1) . . .	5	$5\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{3}{4}$	6	$6\frac{1}{4}$
Decimal Sugar Sol.	$11\frac{1}{4}$	$11\frac{3}{4}$	$12\frac{1}{4}$	$12\frac{3}{4}$	$13\frac{1}{4}$	$13\frac{3}{4}$
Plain Boiled Water,	$8\frac{3}{4}$	8	$7\frac{1}{4}$	$6\frac{1}{2}$	$5\frac{3}{4}$	$5\frac{1}{2}$

(Alkalinized.)

—25 fl. ozs.—

Records of Weight.

FORMULA No. 3.

CASE III.

FAT STARVATION FROM CONDENSED MILK. WEIGHT, 10 LBS. AGE, 3 MONTHS.
 Interval of feeding, $2\frac{1}{2}$ to 3 hours. No. of feedings, 7 to 8. Amount at feeding, $3\frac{1}{2}$ to $4\frac{1}{2}$ ozs.

INITIAL FORMULA: Fat, 2.5 p. c.; Proteids, 0.9 p. c.; Lactose, 5 p. c.; quantity, 33 ozs.

REQUIRED P. C.

Cream, $\begin{cases} F. 2.50 \\ P. 0.90 \\ S. 1.20 \end{cases}$ q. $33 \times 30 = 990$ c.c. $\times .25 = 247$ c.c. $\div 30 = 8\frac{1}{4}$ fl. ozs.
 10 per cent.

Sugar Sol., $\begin{cases} S. 3.80 \\ P. 0.90 \end{cases}$ q. $33 \times 30 = 990$ c.c. $\times .38 = 376$ c.c. $\div 30 = 12\frac{1}{2}$ fl. ozs.
 10 per cent.

MAXIMUM FORMULA: Fat, 3 p. c.; Proteids, 1 p. c.; Lactose, 6 p. c.; quantity, 33 ozs.

REQUIRED P. C.

Cream, $\begin{cases} F. 3.00 \\ P. 1.00 \\ S. 1.40 \end{cases}$ q. $33 \times 30 = 990$ c.c. $\times .3 = 297$ c.c. $\div 30 = 10$ fl. ozs.
 10 per cent.

Sugar Sol., $\begin{cases} S. 4.60 \\ P. 1.00 \end{cases}$ q. $33 \times 30 = 990$ c.c. $\times .46 = 455$ c.c. $\div 30 = 15$ fl. ozs.
 10 per cent.

WORKING FORMULA. (fl. ozs.)

Advance one step every 7 days during the month.

Decimal Cream, (No. 2)	$8\frac{1}{4}$	9	$9\frac{1}{2}$	10
Decimal Sugar Sol.	$12\frac{1}{2}$	$13\frac{1}{4}$	14	15
Plain Boiled Water,	$12\frac{1}{4}$	$10\frac{3}{4}$	$9\frac{1}{2}$	8

(Alkalinized.)

—33 fl. ozs.—

Records of Weight.

FORMULA No. 4.

CASE IV.

NORMAL INFANT.	WEIGHT, 17 LBS.	AGE, 6 MONTHS.		
Interval of feeding, 3 hours.	No. of feedings, 6.	Amount at feeding, 6 ozs.		
INITIAL FORMULA: Fat, 3.5 p. c.; Proteids, 1.2 p. c.; Lactose, 6.5 p. c.; quantity, 36 fl. ozs.				
REQUIRED P. C.				
Cream, 10 per cent. { F. 3.50 P. 1.20 S. 1.60	q. 36 × 30 = 1080 c.c. × .35 = 378 c.c. ÷ 30 = 12 1/3 fl. ozs.			
Sugar Sol., 10 per cent. { S. 4.90	q. 36 × 30 = 1080 c.c. × .49 = 529 c.c. ÷ 30 = 17 2/3 fl. ozs.			
MAXIMUM FORMULA: Fat, 4. p. c.; Proteid, 1.33 p. c.; Lactose, 7 p. c.; quantity, 36 fl. ozs.				
REQUIRED P. C.				
Cream, 10 per cent. { F. 4.00 P. 1.33 S. 1.80	q. 36 × 30 = 1080 c.c. × .4 = 432 c.c. ÷ 30 = 14 1/3 fl. ozs.			
Sugar Sol., 10 per cent. { S. 5.20	q. 36 × 30 = 1080 c.c. × .52 = 561 c.c. ÷ 30 = 18 2/3 fl. ozs.			
	WORKING FORMULA: (fl. ozs.)			
Decimal Cream, (No. 2.)	12 1/3	13	14	14 1/3
Decimal Sugar Sol.,	17 2/3	18	18	18 2/3
Plain Boiled Water,	6	5	4	3
(Alkalinized.)			—36 fl. ozs.	

Records of Weight.

51 HALSEY STREET.

Congenital Macroglossia.—Forsell reports this case (*Hygeia*, November, 1901) with operation and recovery in a boy of three. At the birth of the child a bluish-red patch, the size of a one-cent piece was noticed on the under surface of the tongue, which was otherwise normal in size and shape. This patch grew larger, and when the boy was one month old a doctor was consulted, who made an incision in the tumor, which was attended by considerable hemorrhage. From this time the tongue began to grow rapidly, until a large portion extended outside the mouth. The difficulty in feeding steadily increased, until liquid food alone, and that by drop only, could be ingested. He had never been able to speak intelligibly. The protruding portion of the tongue was excised, this operation being preceded by tracheotomy as a safeguard. The boy was seen again four months later and found to have made a complete and apparently permanent recovery.—*American Medicine.*

THE FEEDING OF CHILDREN DURING THEIR SECOND YEAR.*

BY THOMAS S. SOUTHWORTH, M.D.,

Attending Physician, Nursery and Child's and Randall's Island Hospitals; Physician,
Out-Patient Department, Babies' Hospital, New York.

The dangers and pitfalls in the feeding of children during their second year lie at two extremes, and arise, therefore, from under-feeding and over-feeding. It is well to bear ever in mind that abundant food of an unsuitable type, which the child cannot digest and absorb, may at times produce the same results as under-feeding. The child may lose weight and in short be starved as surely as if he received insufficient food.

Our aim, therefore, is to provide the child with a dietary adapted to his digestive powers and to give it to him in such quantities as may be necessary for continued growth. It is, perhaps, needless to say that the more normal has been the child's progress during the first year, the simpler the problem during the second; but as it would complicate the question too much to introduce here a discussion of those children, so aptly called by one of your number "cases of difficult feeding"—children who enter upon their second year handicapped by a physique and digestion in reality only that of children several months younger—it will be best to confine ourselves to the average child.

Although no sharply dividing line can be drawn, the period of which we speak must be considered a transition period between those months during which the child's food consists chiefly or exclusively of milk and the years during which its nourishment is practically that of the adult. It is then a period of adaptation to the digestion of those elements which go to make up the adult dietary. During this term occurs normally the eruption of ten teeth, or one-half of the number of the first dentition, and this hint, furnished us by nature, may well be considered in the selection and preparation of the food.

In speaking broadly of the second year, as differentiated

* Read before the Section on Pediatrics, the New York Academy of Medicine,
April 10, 1902.

from the first, we unconsciously assume that the normal mother has nursed her normal child for about twelve months. Unfortunately this is becoming rather the exception than the rule, owing to conditions which we need not review and to ignorance or indifference to those available measures which assist in prolonging lactation. Therefore, the real change from the breast to some substitute form of feeding comes often at a much earlier age than that indicated by the title of this paper. The art of modifying cow's milk has, however, reached a sufficient degree of perfection to supplant breast-milk in a fair number of these cases. To those who thrive upon the bottle the subsequent amplifications of the menu are perhaps accomplished with even less difficulty than is experienced in weaning the breast-fed child, since the surviving veterans are inured to the hardships of the campaign.

The weaning period, therefore, whether it be from the breast or from modified cow's milk, comes somewhere towards the end of the first year. The hot summer months should be avoided if possible for this ordeal. If the probable limit of successful lactation fall in the midst of summer, supplementary bottle feeding should be begun early enough to be gradually accomplished before the advent of the hot weather, or else partial supplementary feeding should be adopted and carried on side by side with the nursing in order that no sudden change may be imperative later. Two or perhaps three such bottles will often eke out failing breast-milk until the cooler weather comes.

Cereal gruels are now so frequently used as the diluent in modifications of milk that many children are already furnished with this form of carbohydrates at the time of which we are speaking. If not, one of the first additions to the dietary should be a well-cooked and strained gruel or jelly of one of the usual cereals—oatmeal, barley or wheat. These should be made thickest when the amount added to the milk is the smallest. Children differ considerably in the age at which they can digest whole milk, and so long as it requires dilution, they may well receive a portion of their carbohydrates in this easily-digested form. The choice between the different grains is somewhat a matter of preference, both on the part of the physician and of the child. If the weather and digestion allow, oatmeal has many advocates. A tendency to constipation indeed strongly indicates its use, while diarrhea, eczema or intestinal indiges-

tion would make it inadvisable. It is at this period of life, perhaps, that some of the proprietary preparations of cereals have their chief usefulness, their purpose and their limitations being kept clearly in mind and thus stripped of their glamour.

Whether gruels are used in the milk or not, a very thoroughly cooked, strained and salted cereal may soon be given at one of the morning meals, whichever constitutes the breakfast. Oatmeal, wheatena, germea, hominy and farina may be used for variety; but if the child will take it and it agrees, oatmeal is probably the best. Milk or cream are served with the cereal, and salt in preference to sugar. Rice boiled or steamed is, perhaps, more suitable for the midday or evening meals.

It is the peculiar privilege of the hopelessly and densely ignorant to seek to replace milk entirely by table food, yet some of these unfortunates are ever to be found bursting with pride over the gastronomic feats of their progeny. Cow's milk, except in those extremely rare cases which seem to be unable to tolerate it, should be the basis of a child's food during the second year.

A vague knowledge of the dangers of unclean nursing bottles leads many of the laity and some physicians to hasten to discard the bottle at the earliest moment. This is not a wise procedure for several cogent reasons. It is perfectly practicable with a little care to keep bottles and nipples perfectly clean. Milk, properly prepared, bottled, and, if need be, pasteurized by well-known methods, is less liable to contamination than if poured out for each feeding from a single large container, which must necessarily be opened several times a day. Moreover, the average child will easily take ten, eleven or twelve ounces of milk from a bottle when it can only with difficulty be persuaded to take six or at most eight ounces from a cup. Milk is also ingested more slowly and more normally through the nipple. To the minds of many the ordinary eight-ounce bottle of commerce seems to represent the limit of capacity for the child's stomach, and the deficiency in nourishment is, perforce, made up with an excess of other food. Twelve-ounce nursing bottles are obtainable with a little effort, and the substitution of a larger bottle with gradual increase of its contents is often followed by the happiest results in growth and well-being among children from ten to fourteen months of age.

Another strong argument for the retention of the bottle is found in its adaptability to the maintenance of a 10 P.M. feeding,

which is strongly recommended. As the gradually-increasing dietary of a child requires longer intervals for proper digestion, it is impossible to give a sufficient number of meals with an interval of three and a half to four hours between the hours of 6 A.M. and 6 P.M. Six in the morning is probably quite the earliest hour at which it will prove convenient to give the first meal or bottle, and this often comes later at seven. On the other hand, 6 P.M. or 6.30 is as late as the final meal should be given before the child is put to bed. However, a child so accustomed will sleep from that hour until 10 P.M., when it may be changed, given another bottle and fall asleep, while taking it, finally settled for the night, at a convenient hour for the nurse or parents.

DIETARY.—This last matter has involved the consideration of the hours, intervals and arrangement of the child's meals. These will necessarily vary within certain limits depending upon the convenience of the household and the age of the child, but a general schedule is as follows:

- 7.30 A.M., Breakfast, including bottle of milk (diluted if necessary).
- 11 A.M., Bottle of milk, with crust or zwiebach.
- 2 P.M., Dinner, with rather less milk as the other food is increased.
- 6 P.M., Supper, including bottle of milk.
- 10 P.M., Bottle of milk.

As an alternative, if more convenient, the bottle may be given at 7 A.M., and the so-called breakfast at 10.30 A.M. It is not intended that milk should be taken from the bottle at all the feedings except during the first half of the year. After this the milk given at the more important meals should be poured into a cup, so that the child may also learn to drink it in that way. The 10 P.M. bottle may, however, be continued longest or until the fifth meal is abandoned.

The above is perforce only an outline of the hours, an indication of the times for the chief meals and a reminder that the basis of the diet is milk, for from the twelfth to the twenty-fourth month the dietary necessarily undergoes changes and additions, and the ages at which these can be made often varies very considerably with the individual. Let us then consider these additions to the dietary more in detail, remembering that children have their idiosyncrasies, must be treated as individuals, and that it is better to add one new article at a time, in small

quantity at first, cautioning those in charge to note its digestibility by observation of the stools.

Eggs., soft-boiled, may be given early near the beginning of the year, preferably one-half at first, with the breakfast, and not too often, perhaps on alternate days, lest the child tire of them.

Bread.—If the child has a sufficient number of teeth to nibble crusts of stale, dry, white bread or zwiebach these may be allowed and later the simpler forms of crackers or so-called biscuit. The use of the teeth upon a hard crust is doubtless beneficial and the necessary mastication a stimulus to salivary secretion. Variations, since the appetite of childhood is more or less capricious, may later be made by mixing bread crumbs with egg, with broth or with the juices of meat, or in the form of bread and milk, which latter has from time immemorial retained its popularity as a child's supper.

Fruits.—Earliest among the fruits comes the orange, or rather its juice, carefully freed from the unbroken pulp, as the latter frequently passes through the intestinal canal undigested. While a valuable addition to the diet of well children the recognized role which orange juice plays in the treatment of infantile scurvy, suggests pointedly the probable need of the system for food of this nature in other children whose nutrition is below par. It is usually relished, and when given, as it should be, midway between the first two feedings, or at least an hour before the ingestion of milk, it regulates the bowels and is most helpful in constipation.

Prunes have the advantage of cheapness and of availability at all seasons of the year. Two or three of them stewed, with very little or no sugar, with the indigestible skin entirely removed and the pulp passed through a sieve, may be given at dinner or supper.

Thoroughly soft baked apple, entirely freed from the skin and hard portions of the core, constitutes the last of the usual trio of fruits.

Vegetables.—These may be added by the middle of the year and sometimes earlier if there be constipation. Spinach, carefully passed through a sieve, may be tried first, and afterwards, if fresh green peas, asparagus tips or tender string beans are obtainable, they may be treated the same way or mashed. Towards the end of the year stewed celery and tender boiled onions may be added. Potato, when given, should be baked

and mealy, and well broken up with a fork. Salt and cream or meat juices may be served with it for variety.

Meat and its Derivatives.—Meat in its usual form must await the development of the masticatory powers, but beef juice, by which we mean the red juice expressed from lightly-cooked steak, may be given even before the twelfth month. It is especially useful when the proteids of the breast-milk are low towards the end of lactation, and in children of a rachitic tendency. Where there is anemia it is an excellent and easily assimilable hematinic. From one to three ounces is sufficient, given at dinner daily, or again alternating with mutton- or chicken-broth. Children of nervous, rheumatic or gouty parents, who themselves have a tendency to a nervous temperament, and to strongly acid urine of high specific gravity or to eczema of the skin, will often do better without it, and also without broths and soups. It is capable of being abused both in frequency of giving and in quantity, although its cost militates against this except among the well-to-do. These exceptions, however, do not detract from its value in suitable cases. Towards the middle of the year its place may be taken by scraped rare pulp of steak, roast beef, roast mutton or mutton chop, the tough fiber being carefully avoided. The finely-minced white meat of poultry may also be given. Excess of meat and its derivatives should be avoided in the child as in the adult, and the amount should bear some relation to the amount of exercise and out-of-door life, but with the limitations mentioned they are entitled to their place in the dietary of this period.

Within reason children should be taught to eat a fair range of suitable articles, and mere preferences based on appearance or a slightly more agreeable taste should not be allowed to stand in the way of its accomplishment, which may often be effected by silence, patience and tact. Certainly many children seem to be kept from eating certain new articles which they at first object to slightly and finally refuse, because they hear it stated in their presence that it was just the same way with some relative in their childhood.

It would seem unnecessary to inveigh against the custom of allowing children of this age or indeed during the next year, to come to the family table, were this not the beginning of much subtle trouble for the child. For while this is a common practice among the poor, it is by no means confined to their

ranks. The nursery maid's afternoon out, parties for older children, Sunday dinners and informal gatherings of admiring relatives offer the excuse for introducing the child for a longer or shorter period, often at the close of the meal when the dessert has been brought on. The child at first is dazzled by its new surroundings, but soon fixes its attention on some tempting article, asks for it, teases for it, finally cries for it, and, I may say, rarely fails to get a little of it. It is the fruit of the tree of knowledge. Suddenly it breaks upon the child's intelligence that there are things to eat more delectable than its simple nursery diet. The lid of Pandora's box is then fairly off.

A consideration of desserts scarcely enters into this question of feeding during the second year, and the longer they are deferred the better for the child, both for the reason above given and because it is inherent in child nature to prefer sweet things to the neglecting of the usual plain diet. You have doubtless all seen a child who was previously making hearty inroads upon the principle viands of its meal, suddenly drop its fork or spoon upon the appearance of some favorite dessert, with the declaration that it had had enough, necessitating the usual round of coaxing, threats and promises to secure a reluctant and partial finishing of the first portion of the meal.

Tea, coffee and even beer need to be specifically forbidden among the poor, who, in the majority of our city families, give one of the first two almost as a matter of course. The giving of candy and sweets may be almost as much a vice of the well-to-do. This is often defended by the notion that sugar is a necessary part of a child's food. This reasoning is, however, fallacious. Breast-milk or modified milk contains sugar as a needful constituent, but as soon as the child takes starches with some liberality these are at once converted by the salivary and pancreatic ferments into sugar, and let it be clearly understood, into sugar which is ample and sufficient and which does not disturb digestion and cloy appetite as is the case with concentrated saccharine food.

These few forbidden articles have been definitely mentioned because of the frequency of the transgressions, but it should be unnecessary to go further because the suitable articles have been definitely mentioned. For the sake of clearness let us recapitulate this list: Milk, eggs, cereals, bread, meat juices, scraped meat and certain vegetables and fruits. With-

out any extended discussion of the relative value of the proteids, hydrocarbons and carbohydrates in the various articles, a very simple knowledge of physiological chemistry will show one at a glance that the foregoing list of simple and well-recognized articles of diet furnish the child with a rational mixed ration, the attainment of which is our natural purpose during the period under discussion. The average child cannot depart far from this standard without suffering the consequences—acute and chronic disturbances of digestion on the one hand, if it be much exceeded, on the other hand malnutrition in its protean aspects if the food be insufficient or incapable of proper digestion.

With due attention to proper hygiene, pure milk, properly cared for, and a simple diet the much-dreaded dangers of the second summer will not materialize.

The healthy child, furnished with fresh air and sunlight, who has not been pampered but accustomed to a plain diet with moderate variations, does not need to be tempted to eat. If food is temporarily repugnant, we should respect this protest of nature. The digestive powers of a child like those of an adult are below par during excessively hot weather, or at the onset of fever or any acute indisposition. Such a child is as much entitled to be put on light diet as the adult, and it should be borne in mind that undiluted milk or even the child's usual modification of milk is not necessarily light diet for that individual child, but that further dilution is called for. Attention to this detail is perhaps the most important measure of prophylaxis in the whole realm of pediatrics.

47 WEST FIFTY-SIXTH STREET.

Testevin's Sign of Infection in Children.—This is a peculiar reaction of the urine which Testevin believed to be invariably present during the incubation of infectious diseases. The reaction is elicited as follows: A specimen of urine from which all albumin has been removed is acidulated, a third of its volume of ether added and the mixture is agitated briskly; in a short time a collodion-like pellicle of varying thickness, consistency, and adhesiveness forms on the surface. Modena (*New York Medical Journal*) has observed this reaction in 21 cases of infections and never found it present in healthy children; he does not regard it of any diagnostic or prognostic value.—*Clinical Review.*

SPINDLE-CELL SARCOMA OF THE THORAX IN A CHILD.*

BY LOUIS FISCHER, M.D.,

New York.

Gustav L., a male child of about eight years, was first seen by me in July, 1900. His mother gave the following history:

He was breast-fed about ten weeks and owing to a diminution in the quantity and quality of her milk, she was forced to wean the child. He then received sterilized milk. This food was given until the child was weaned from the bottle at about the end of his second year.

When about six months of age, a large, glandular swelling commenced behind the right ear, which necessitated an incision. The attending physician said it was an abscess. At this same time, while the child was about six months old, he had a severe attack of gastric fever. This required careful dietetic treatment. Cow's milk was continued in a more modified form.

At age of one year the child was attacked with measles, accompanied by a catarrhal bronchitis. Some cough remained and when the child was two years old he had a severe attack of pertussis. When the child recovered, he remained well until he was three and one-half years old, then he was infected with scarlet fever lasting two months. Thus the child passed his infancy with some gastric derangement, followed by measles, pertussis and scarlet fever. He did not have croup nor diphtheria.

The notes were recorded as follows:

"**FAMILY HISTORY.**—This is good. The parents of this patient are both living, and apparently strong and healthy; they have two other boys, well and strong. There is no history of syphilis, rheumatism, gout, tuberculosis, epilepsy, nor anything of a malignant nature in the family, excepting this fact which is extremely noteworthy, that the grandfather had a sarcomatous tumor, which ended fatally.

"**EXAMINATION.**—The patient was brought to me for the relief of a number of tumors on the front of the thorax, which felt

*Read before the Section on Pediatrics, the New York Academy of Medicine, April 10, 1902.

quite hard on palpation. At times a distinct sense of fluctuation could be made out, and when examined by an exploratory puncture, a few drops of thin, yellowish serum was obtained. These tumors have been very troublesome for the past few years. They have caused severe dyspnea. The physician who treated



Fig. 1.—SPINDLE-CELL SARCOMA.

The Prominence of the Tumor Shows by Contrast the Emaciation of the Body.

this boy in Hamburg, believed that the growths contained pus. This statement was made to the family. The physician made an exploratory puncture and was rewarded by a few drops of thin, serous liquid, as in a puncture I made and obtained no pus.

"The size of the growth as seen externally is about 15 cm. in length and about 6 to 7 cm. in circumference. There is marked dullness on percussion extending over most of left side. (See figure I.) The tumor is surrounded by a network of veins, intensely engorged with blood. There is mediastinal pressure. As far as can be seen and palpated, the growth occupies that region of the thorax *usually occupied by the heart.* The growth varies in size from week to week.

"The heart has been pushed to the right side and occupies the right axilla. The apex beat is heard about two finger breadths below and to the right of the *right nipple.* (See figure II.)

"The pulse is 144, small, feeble, quite irregular and easily compressible. The respiration is irregular, of the Cheyne-Stokes type, and frequently sighing. It is usually about 50-52 in a minute; the temperature is always above normal and varies from 100° F. in the rectum, morning, to 101 2-5° in the evening. There is always a febrile tendency.

"There is constant dyspnea and also extreme cyanosis of the lips, fingers and toes. The child is very pale and in a very anemic condition. There is extreme pallor of the conjunctival mucous membrane, the gums, and the mucous membrane of the lips."

Owing to the extreme amount of weakness caused by anorexia, the child was compelled to remain in bed most of the time for the last year. Dyspnea was so great that the child slept in a sitting posture. The child was very nervous and trembled when he was touched, but he was very bright mentally. There was constant and rapid emaciation. Concentrated food was given, which the patient took quite well. There was extreme hyperesthesia of the skin. The digestion was quite good, and although the bowels moved sluggishly, they did not require much medicinal treatment. Fruit and fruit juices acted as laxatives. There was a curvature of the spine from left to right, most marked in the dorsal vertebra. The urine was examined several times. It showed no evidence of pus, blood, no albumin and no sugar. There was a slight indican reaction. No acetone, no casts, no morphitic elements, microscopically.

The case was hopeless from a medical standpoint, as the growth was constantly increasing. The child suffered constantly from insomnia and great dyspnea, requiring constant

soporifics and narcotics. Owing to the grave prognosis, the family agreed that the possibility of surgical measures might afford some relief.

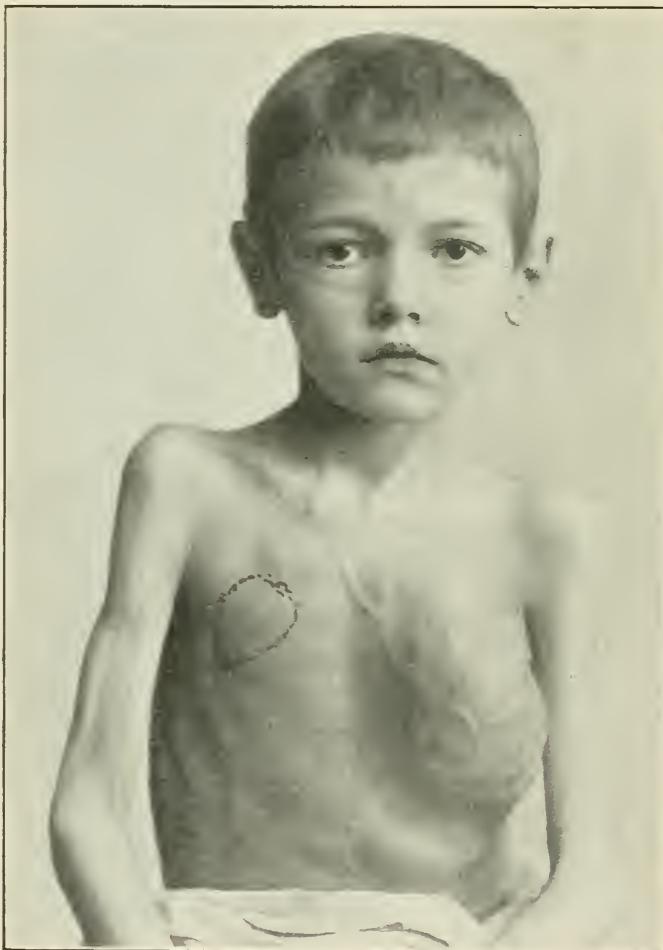


Fig. II.—ANTERIOR VIEW OF THE TUMOR.

Showing also the Position of the Displaced Heart and the Enlarged Veins.

As the tumor frequently appears to show a distinct pointing, this latter condition suggesting suppuration, an anesthetic was given with the assistance of Dr. J. W. Wurthman. The

anesthetic was badly borne and I succeeded with difficulty in making two exploratory punctures.

An X-ray examination, to verify the clinical data, was made by Dr. Beck, to whom the case was referred. The heart could be plainly seen pulsating on the right side. No definite satisfactory data could be learned concerning the tumor, on account of the restlessness of the patient, and the child was removed to St. Mark's Hospital and operated on. The child died soon after the operation.

A specimen of the tumor, removed during the operation, was sent by me to Dr. Mandlebaum, for a pathologic examination. He reported the tumor to be a spindle-cell sarcoma in a rather active state of growth, on account of the large number of mitoses present. The fluid contained simply red blood cells and no pus.

Sarcomatous growths in children are quite rare, though met with from time to time. Thus Mauderli, in the Children's Hospital of Basle, Switzerland, reports for the last twenty years that he treated a total of 10 patients: 7 boys and 3 girls, of whom 4 were under three years of age, 3 were between three and six years, 1 was between six and nine years, and 2 were between nine and twelve years.

As but one case of malignant sarcoma was met with in this hospital in the course of the last twenty years in children as old as the case here reported by me, I feel justified in adding mine to those already recorded.

The interesting points about my case were: (1) The displaced heart—the heart being immediately behind the right nipple. The pulsations and apex-beat could be distinctly felt and seen about two finger-breadths below the right nipple. (2) The intense dyspnea caused by pressure of the tumor. (3) Constant cyanosis and edema of the limbs, due to interference with the return circulation to the right side of the heart.

65 EAST NINETIETH STREET.

Analysis of Urine in Determining Age of Neonatorum.—
Mordica states (*Giornale d. Acad. de Med.*, February, 1902) the presence of chlorids in the urine is not indicative of the age nor of the possibility of extrauterine life. The phosphates, on the other hand, are valuable from this point of view. In 109 analyses of urine from twenty-five infants, it was impossible to detect the phosphates in the urine before two complete days of extrauterine existence, and the traces were not distinct until the third and fourth days.—*Journal of the American Medical Association.*

A CASE OF PRIMARY INTESTINAL TUBERCULOSIS.

BY M. NICOLL, JR., M.D.,

Instructor in Pediatrics, University and Bellevue Hospital, Medical College,
Pathologist, Foundling Hospital, New York.

The child whose case I wish to record was a female, two years and three months of age, an inmate of the New York Foundling Hospital. Her history, in so far as it could be obtained, was as follows: She was sent from the hospital, a healthy new-born babe, in October, 1899, to be wet-nursed by a healthy and reliable woman, and returned eleven months later in good condition, and was admitted to one of the nurseries of the institution. Her food at that time consisted of milk (unsterilized) and bread food. The child required no medical attention until December, 1901, when she was sent to quarantine on account of an ulcerative process about the vulva which promptly yielded to treatment. In quarantine she contracted measles, the rash appearing on December 29th.

On January 1, 1902, the patient developed a severe purulent conjunctivitis of one eye which lasted for several days. The attack of measles ran an uneventful course.

January 8th the patient's movements were green, slimy and foul-smelling.

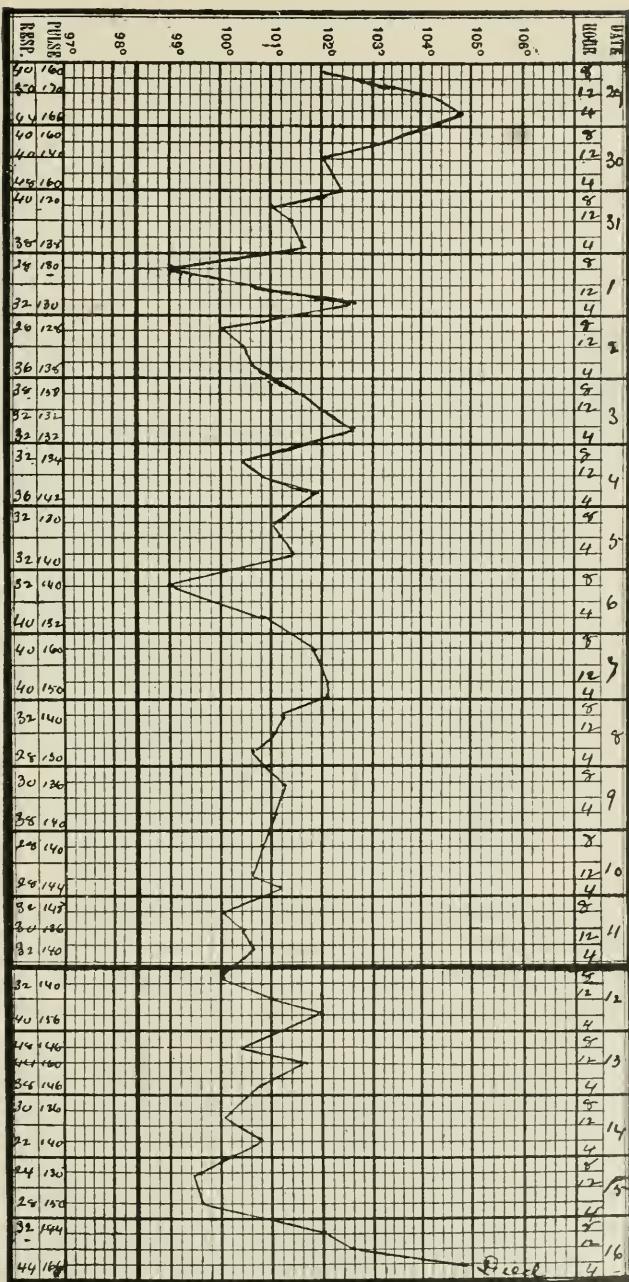
On January 10th there was a small ulcerative process on the upper eyelid near the outer angle.

January 11th there were similar ulcers about the same eye which showed a tendency to spread rather rapidly. The movements from the bowels continued the same. The patient vomited constantly.

On January 11th the patient had a chill in the morning, during which there was cyanosis and a feeble and irregular heart action.

January 16th the patient seemed better. The ulceration about the eye continued. The nutrition was very poor, and there were moist râles over the bases of both lungs.

January 16th the patient's temperature shot up rapidly. The respirations and pulse were proportionately increased in frequency, and death took place very suddenly. (See Chart.)



TEMPERATURE CHART OF CASE OF PRIMARY INTESTINAL TUBERCULOSIS.

AUTOPSY NOTES.—The points of interest noted at the autopsy performed on January 17th are as follows: The body is extremely emaciated. There are ulcerations about both auricles and the left eye. The teeth are all present, the ribs slightly beaded, the articulations of the upper and lower extremities are not enlarged, the nasopharynx is normal. The cervical lymph nodes are slightly enlarged on both sides. The mediastinal and bronchial lymph nodes are normal. The pleura is normal. Both lungs show marked congestion of the lower lobes and a few scattered areas of bronchopneumonia. Heart and pericardium normal; liver large and fatty; spleen small and rather soft; pancreas and kidneys normal; the stomach is congested.

The small intestine shows a few areas of slight congestion, widely separated by normal mucous membrane. About two inches above the ileocecal valve there is an ulcer (see cut) with thickened and somewhat undermined edges, and corresponding to this in the mesentery there is a mass the size of a walnut, composed of half-a-dozen or more cheesy lymph nodes. Many other of the mesenteric lymph nodes are enlarged, whitish or pinkish in color, with no evidence of tubercle. The large intestine is moderately congested.

Cause of death—acute pulmonary congestion, bronchopneumonia and inanition.

The microscopical examinations of the sections were made for me by Prof. E. K. Dunham, who reports as follows:

BACTERIOLOGIC REPORT.

"Sections of the intestinal ulcer and of two of the enlarged lymph nodes from the mesentery were examined microscopically. One of the lymph nodes had undergone marked degenerative changes. In the other no such changes were visible to the unaided eye.

"The edges of the ulcer were raised owing to edema and round cell infiltration of both the mucous and submucous coats and to the production of a granulation tissue rather rich in epithelioid cells. A slight thickening of the serous coat, due to the same processes, was also observed. In a few places, within the thickened submucosa, there were distinct nodules in which the epithelioid cells were more abundant than elsewhere, and some of these cells exhibited degenerative changes. No giant cells were

found in any part of the specimen. Ten tubercle bacilli were found in these granulations. The majority of these bacilli were situated within epithelioid cells; one cell contained two bacilli. There was no evidence of cicatrization, and in its absence it seems justifiable to believe that the tuberculous process was progressing at the time the child died. The relative abundance of the tubercle bacilli adds further weight to this conclusion.

"The central portion of the degenerated mesenteric lymph node was entirely converted into a fine granular detritis containing small areas of granular calcification. Only a narrow band



TUBERCULOUS ULCER OF THE ILEUM.

of fibrous tissue with round cell infiltration, and places in which there are collections of epithelioid cells, contains well-preserved tissue elements. In this margin seven tubercle bacilli were found, all but one within the epithelioid cells. No giant cells were observed. The other mesenteric lymph node presented very slight round cell infiltration of the fibrous capsule. The enlargement appeared to be due to hyperplasia of the normal tissues, but there were places in which cells rather larger than lymphocytes had suffered necrosis. No tubercle bacilli were found in this node, but the necrosis just mentioned suggests at

least the possibility of tuberculous infection. In the intestinal ulcer and both lymph nodes there were a few micrococci and bacilli which did not resist decolorization with acid. These were, no doubt, accidental and probably unimportant consequences of the intestinal lesion."

The point of interest in the case is the presence of a single primary lesion of tuberculous infection, without any evidence of tuberculosis elsewhere, except in the lymph nodes of the immediate neighborhood. It cannot be doubted that death alone prevented the occurrence of a general miliary tuberculosis, and when we consider the general condition of the patient and the well-known tendency of measles to light up a previously quiescent tuberculous process, it is rather remarkable that the tuberculous process had not made further progress.

A very long and careful search was required to demonstrate the presence of tubercle bacilli in the sections. This difficulty has been noted by others. Thus Wyss, in 3 cases described by him of undoubted intestinal tuberculosis, was able to find tubercle bacilli in but one instance.

It is, of course, impossible to determine the source of infection in this case. The milk given to the child was part of the general supply of the hospital furnished by one of the reliable city dealers and was given raw.

The case constitutes the sixth example of undoubted primary intestinal tuberculosis occurring at the New York Foundling Hospital among the very many autopsies performed by Drs. Northrup, Freeman, Bovaird and myself. Dr. Bovaird has recently given such a full and exact account of the frequency of occurrence of this condition elsewhere that I need only refer to his paper on the subject for further particulars (*ARCHIVES OF PEDIATRICS*, December, 1901).

In conclusion I desire to express my thanks to Prof. Dunham for his painstaking report on the microscopic findings.

168 WEST FORTY-EIGHTH STREET.

Vaccination.—The summary of vaccination results given (*The Lancet*, April 5, 1902) by Sinigar emphasizes, he thinks, the innocuousness of aseptic vaccination and shows that vaccination is a better protection against smallpox than smallpox is against vaccination. While a staphylococcus was found in the lymph used, he points out that in spite of this the majority of arms showed only normal reactions of vacsinia.—*Journal of the American Medical Association.*

DIPHTHERIA OF THE CONJUNCTIVA TREATED BY ANTITOXIN.*

BY L. EMMETT HOLT, M.D.,

New York.

Cases of conjunctival diphtheria treated by antitoxin are not so numerous but that the report of an additional one may possess some interest.

The patient, an infant six months old, was admitted to the New York Foundling Hospital, May 18, 1901, without any history. Examination showed swelling and redness of the right eye, especially of the upper lid, to such a degree that the child was unable to open it. On everting the lid a thick yellowish gray patch of pseudo-membrane was seen upon the conjunctiva, covering about one-half of the lid. This membrane was very adherent. There was evidence of considerable conjunctivitis and the cornea was slightly cloudy. There was no membrane in the throat or elsewhere, and the general symptoms were those of moderate prostration, temperature 102°.

A fresh smear and afterward a culture from the conjunctiva showed diphtheria bacilli in numbers, and 2,400 units of antitoxin were administered. Ice compresses were applied and a solution of atropin dropped into the eye. The progress of the case was rapid and uneventful. In twenty-four hours the temperature had fallen to 100.4-5°, and in forty-eight hours to normal. Improvement in the eye began almost immediately and in twenty-four hours a very decided change was seen. On the third day the swelling had so far diminished that the child could open the eye and the membrane was nearly gone. It did not disappear entirely until the sixth day. Diphtheria bacilli were found by cultures as late as the seventh day, but on the tenth day the eye was entirely well.

No more convincing demonstration of the value of antitoxin can be found than in cases like this, which formerly under any treatment known almost invariably went on from bad to worse, ending in the destruction of the eye.

*Read by title before the American Pediatric Society, Niagara Falls, N. Y., May 27, 28, 29, 1901.

Clinical Memorandum.

A CASE OF INTUSSUSCEPTION.*

BY F. W. SAMUEL, M.D.,

Louisville, Ky.

A female child aged twenty-one months was attacked with vomiting at five o'clock in the evening of March 15, 1902. The vomitus consisted of a large quantity of undigested banana. A physician was called who administered essence of pepsin followed by a dose of castor oil.

At two o'clock the next morning the child had colic, but the physician was not summoned until five o'clock, when he repeated the oil and applied hot flannels to the abdomen and the child seemed to be relieved. He was summoned again at eight o'clock to find the child in convulsions. Consultation was then asked for. There had been no action from the bowels; temperature, 102° F.; pulse, 108; pupils widely dilated, uniform, with no reaction to light. The convulsive twitching was confined to the right side exclusively, the left seemingly paralyzed. This convulsion lasted for eight hours, during which time the temperature went up to 106° F. The abdomen became distended and stercoraceous vomiting appeared, which established the diagnosis of intestinal obstruction.

Inflation of the lower bowel with water was tried, with the patient in an inverted position. An abdominal binder was placed on the child, and a stiff rubber catheter was inserted into the colon; to this was attached a piston syringe and the piston withdrawn slowly and gradually; at the same time the binder was tightened one pin at a time from above downward. By this means the distension was considerably relieved. A glass tube was then inserted through the sphincters, and gas began to come away, which entirely relieved the distension.

The bowels moved, the temperature came down to 102° F., the abdomen became soft, stercoraceous vomiting ceased, consciousness was partially regained, convulsive movements

Abstract.—Reported to the Louisville Clinical Society.

ceased, and the patient's condition was apparently much improved.

By the next morning the bowels had moved several times. The pulse was now very fast, but responded slightly to stimulants. The bowels did not act any more that day, and by noon Monday, March 17th, the patient was pulseless at the wrist. She sank into a comatose condition, and died at eight o'clock.

The specimen shows the result of the autopsy. All of the invaginations (six in number) were involved in an inflammatory process, and all of them agglutinated. All of these invaginations occurred in the lower two-thirds of the jejunum, which makes the case far more interesting, because invagination or telescoping of the bowel is much more rare in this part of the intestine than in the ileum or even the large bowel. The common site of intussusception in the child as well as the adult is in the small intestine about the ileocecal valve. The number of invaginations is also interesting, together with the great amount of bowel which is invaginated in each instance. It will be observed that the intussusceptum and intussuscipiens are firmly agglutinated, and that the intestine is largely denuded of its peritoneal coat.

I did not see this patient during life, and the only information I have concerning her comes from the family physician. I have performed autopsies in 2 cases where about the same condition was noted, both cases occurring at the ileocecal junction.

DISCUSSION.

DR. P. F. BARBOUR.—The proper treatment of intussusception is unquestionably surgical intervention, but I am conservative enough to say, I think it is wise to first try an enema of water, using pressure obtained from an elevation of three or four feet. When this method is tried, however, I would have a surgeon present, so if I did not succeed he could operate at once. Twenty-four hours is probably as long as it is safe for an intussusception to exist without operative measures for its relief. Beyond that time operation would probably not be successful if reduction was accomplished. Pediatricians to-day are

almost a unit as to the advisability of early operative intervention in these cases.

DR. CARL WEIDNER.—I would like to emphasize an important point in the differentiation between intussusception and obstruction of the bowel from other cause, *viz.*: Frequent passages from the bowel or frequent desires to go to stool, with the passage of mucoid and bloody material, are observed in intussusception. Again, localized swelling or tumor on one side of the abdomen and extreme tympany on the other are points of importance. The invaginations in this case occurred higher up in the intestinal tract than is usual, which makes the case more interesting. When the intussusception occurs in the large bowel we can frequently detect it by introducing a finger into the rectum, as I have done in cases under my care. As to the indication for treatment: We ought not to wait long when the symptoms are such as to make it apparent that obstruction of the bowels has taken place. Operation should be resorted to promptly.

I have had cases similar to the one reported which terminated in the same manner; they might not have so terminated had prompt surgical intervention been resorted to. In exceptional cases adhesions may occur, the invaginated bowel may slough and the patient will be thereby relieved, but we should not run these risks, therefore the indication is for prompt surgical measures.

DR. T. P. SATTERWHITE.—Unquestionably the prognosis is death in the great majority of cases of intussusception without prompt operation. In the case reported there is a possibility that life might have been saved by surgical means. Surgical operations upon very young children are attended with considerable mortality, yet there is always a chance of life being preserved by early surgical intervention in cases such as the one reported. Exploratory operation even in the child is not extremely serious, and even if intussusception is not absolutely certain from the manifestations present, as we know the dangers attending such a condition, I am clearly of the opinion that prompt surgical intervention, or exploratory operation, should be resorted to in order to form a proper diagnosis and to relieve the condition if possible.

DR. F. W. SAMUEL.—The subject of intestinal obstruction is so large that its limited discussion is extremely difficult. The diagnosis of intussusception in the child is usually arrived at early by the fact that there is always straining at stool, the passage of small quantities of feces streaked with mucus and blood, a tumor is present in a large percentage of cases in the iliac fossa which can be readily made out, the so-called sausage-shaped tumor, and examination per rectum reveals a mass where the

intussusceptum has entered the intussusciens when it is low down in the tract. In rare instances it has been noted that nature has cured these conditions by adhesion and sloughing.

I want to again refer to the rarity of intussusception in this part of the bowel. I have searched such literature as I have at my command on this subject and am unable to find the report of a single case where intussusception occurred in this particular location in children, therefore I regard it as exceedingly rare.

Whether or not this case could have been relieved by operation I do not know, but we do know this much that intestinal obstruction is a most serious condition and the delay that usually occurs is responsible for many of the deaths following late operations. In operating for intussusception we must do so early, because the important thing is to reduce the gut from the invagination, before adhesion has become firm, and if we wait three, four or five days, nature has so fixed the bowel that it is next to impossible for the surgeon to relieve the condition without doing great damage to the gut. If the gut is seriously damaged necrosis may occur, with infection after you have reduced the gut and with perforation afterward.

One point in the differential diagnosis: Intussusception occurs in children most frequently while intestinal obstruction from other causes, such as volvulus, etc., is to be found in older persons. The diagnosis of intussusception in the child is comparatively easy, based upon the symptoms already outlined, remembering that intestinal obstruction in children seldom occurs from other causes.

Tea-Kettle Laryngitis.—L. Morquio reports (*Revista Med. del Uruguay* (Montevideo), November 1, 1901) 5 cases of severe edematous laryngitis in children two or three years of age, caused by sucking the spout of a tea-kettle full of boiling water, have recently come under Morquio's care. Twenty-four hours usually decide the child's fate as the condition rapidly alters for better or worse. Three required tracheotomy on account of the suffocation induced by the excessive edema and secretions. One died in two days. The second had apparently recovered from the burn and consecutive bronchopneumonia, when a fulminating hemorrhage occurred fourteen days after the scalding. No autopsy was allowed. The other children recovered. Treatment was local with a solution of boric acid, application of picric acid, and calomel internally. Cold compresses were applied to the neck.—*Journal of the American Medical Association.*

Clinical Lecture

AT THE POST-GRADUATE MEDICAL SCHOOL, PEDIATRIC DEPARTMENT.

BY AUGUSTUS CAILLÉ, M.D.,

New York.

Synopsis: 1. Enlarged Thymus Gland. 2. Persistent Hoarseness Following Measles. 3. Latent Gonorrhreal Vulvovaginitis. 4. Acute Vesicular Eczema Simulating Scabies. 5. Remarks on Pleuropneumonia in Very Young Infants.

CASE 1.—Quite recently several infants have drifted into our "Babies' Ward" afflicted with congenital heart lesions. They were typical "blue babies," and were returned to their homes as soon as their incurable condition was fairly established. The infant which I present for your consideration this morning is six weeks old, and is occasionally slightly cyanotic and has spells of rapid and laborious breathing, and on two occasions it has had convulsive seizures. Our examination reveals a loud systolic murmur at the base of the heart which is not transmitted in any direction. Apart from this blowing murmur, the valve sounds are heard clear and distinct. The heart's dulness is broader than normal and extends upwards along the sternum. In every other respect the child appears to be normal.

A positive diagnosis of the exact underlying condition in such cases is hardly ever possible. From the symptoms and physical signs we may suspect: (1) A patency of the ductus arteriosus; or (2) compression of large vessels leading from the heart by constricting bands; or (3) compression of large vessels by an enlarged thymus gland.*

CASE 2.—The child before you is three years old, and has had measles (four weeks ago) of moderate severity from which it recovered completely, excepting a marked hoarseness and a stridulous breathing on exertion.

Cases of this nature are comparatively rare. A moderate laryngitis is present in almost all cases of measles. In this in-

Note.—The infant died very suddenly on the day following its demonstration. The autopsy made by Dr. Pisek revealed a large thymus gland measuring almost two inches in length and an inch across, the lower pole of which compressed the large vessels in such a way as to cut off the circulation.

stance the inflammation of the laryngeal mucosa was intense and has left the larynx in a congested and swollen condition. As the narrowest part of a child's larynx is at the height of the cricoid cartilage, even a slight intumescence in this neighbourhood will give symptoms of obstruction in breathing. The hoarseness and aphonia show that the ventricular bands and vocal cords are also congested. A local examination with the laryngeal mirror is not feasible in young children, and in the way of treatment local interference is at present not indicated. Should the stenosis increase, it would be rational to administer 2000 units antitoxin with a view of overcoming any late diphtheritic infection. Children in this condition should if possible be taken to the seashore where they can breathe a dust-free air. In cases of urgent stenosis, a rubber-covered intubation tube should be introduced and worn for a week.

CASE 3.—This girl of six years developed a specific vulvovaginitis after two weeks' stay in one of our well-conducted hospitals under circumstances which make it almost impossible to assume that the disease could have been contracted whilst in the wards. Such cases are obscure, annoying and important from a medico-legal standpoint. Before a patient is admitted to our wards a smear preparation is made in every instance in which the slightest vulvovaginal discharge is noticed. This was done before the admission of the case here presented with negative result. The girl was at no time in contact with communicable disease, and developed a specific discharge after fourteen days. Under the circumstances we are justified in assuming that the gonococcus, like other species of microbes, may be latent, and if present in the deeper parts may be overlooked. As regards the management of such cases experience has taught us that swabbing the vagina with a nitrate of silver solution (twenty grains to the ounce) every other day and frequent local cleansing with sulphocarbolate of zinc ($\frac{1}{2}$ i to $\frac{1}{2}$ vi) will result in a cure of the trouble in eight to ten weeks.

CASE 4.—Our next patient is a boy of thirteen in whom an acute vesicular eruption has developed in the past week, starting at the fingers and spreading over various parts of the body. In contradistinction to scabies, which is as we know usually confined to the interdigital webs and the lateral surfaces of the phalanges and which presents characteristic acarian furrows,

this eruption must be looked upon as one due to filth and scratching.

Acute vesicular eczema is best managed by subduing the inflammation by means of Goulard's lead lotion and subsequently applying an ointment of oxid of zinc or bismuth subnitrate — $\frac{3}{i}$ to $\frac{3}{i}$.

CASE 5.—In presenting our last case this morning, one of pleuropneumonia in a young infant, I may be permitted to remark that pleuropneumonia with effusion is found in children of all ages. The presence and character of the effusion is elicited by means of the exploratory needle. The symptoms are those of pneumonia, the dyspnea being particularly distressing. The prognosis in very young children is grave. If puncture reveals a turbid, watery fluid containing pus elements, a simple incision in the intercostal space will allow the fluid to escape, after which a shred of iodoform gauze may be introduced into the pleural cavity to act as a drain. This procedure gives immediate relief, and the infant will be in a better condition to stand subsequent and more severe operative interference (resection of rib) should such become necessary. The early removal of a few ounces of serum in pleuropneumonia of children below one year of age is often a life-saving procedure, particularly in those cases in which a greatly embarrassed respiration makes us apprehensive of a fatal issue.

Paralysis in Infants Due to Syphilitic Disease of the Spinal Cord.—The investigations of Jürgens, Zappert, Gilles de la Tourette, P. A. Peters, and others, as well as his own observations, have convinced A. M. Levin (*Meditinskoe Obozrenie*) that paralysis of the extremities in the new-born and in infants affected with hereditary syphilis is a true paralysis due to disease of the spinal cord, and not a pseudoparalysis due to local affection of the corresponding muscles or bones. The most characteristic, though not pathognomonic, sign of this disease, according to Peters, is the so-called floating position of the hand. There is great pronation of the forearm and the wrist, the palm being turned outward and backward.—*Medical Record*, December 28, 1901.

ARCHIVES OF PEDIATRICS.

MAY, 1902.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

CHILDREN'S WEIGHT AND HEALTH.

Of late years there has come the realization that the body weight represents one of the most significant signs of the general health of the individual. Most of the large life insurance companies prefer a risk on a life handicapped by serious family heredity rather than one on an individual who is twenty pounds under the average weight for his size and age. Of course, the medical significance of the body weight does not necessarily imply that in order to be healthy an individual must come up to any arbitrary standard, but that, with due allowance for family antecedents in this matter, he must not fall far below the known average weight for his height. If this is true of adults, it is, if possible, even more significant in children. The weight of the child, and its increase, constitutes the best index of health and healthy development not only during infancy but also during later childhood.

Little account is usually taken of the child's weight from month to month. Very seldom is the family physician able to obtain anything like a continuous record at regular intervals. Such a record would surely reflect the child's health during its developmental stage better than anything else. Plenty of esoteric information is usually injected into the mother's account of the child's health. Subjective symptoms of the ordinary variations of feeling, due to the weather, to passing constipation, or to deserved indigestion, are retailed to the physician, when the child finally comes down with some illness. The one record of objective conditions that is easiest to keep and that is most significant—the body weight at regular intervals—is, as a rule, utterly deficient. It must be conceded that one reason for this is that physicians generally have not appreciated the help such a record might be in furnishing data for the study of the course and progress of the child's development, its interruptions, its phases of more or less stagnancy and its times of acme.

The careful notation of the child's weight is especially valuable during the years that immediately precede and follow puberty. It is at this time that the strains and stresses of life are most serious. Not infrequently, when the facial appearance would seem to proclaim a condition of excellent health, the body weight will be found to negative the conclusion that might be drawn from the child's appearance. This loss of weight will often serve to account for the lassitude, disinclination to study and capricious appetite that are sometime set down to laziness.

The unfavorable attitude of many children towards fats is very well known. Often this distaste is found to exist in just those who need most to have fats liberally supplied in their dietary. Sometimes the fact that one or both parents have had similar feelings at a corresponding age is taken to mean that the distaste is hereditary, and only too often induces the unwarranted assumption that nothing can be done for the condition except to make up for fats by starchy substances. As a matter

of fact, what is mainly needed is judicious selection and careful preparation of the fats to be taken. Cream, and the vegetable oils particularly, may, with a little tact, be made to enter into a child's dietary, to its decided advantage and without exciting disgust. Even crisp bacon and good butter may also be made to supply the fat needed in these cases if tastiness is properly consulted.

Where, notwithstanding judicious selection of materials, not as an incidental experiment, but as a continuous direction for some time, the child fails to come up to normal weight, or where, because of the stress of intellectual work, it drops below the standard at times of special strain, this symptom must be the indication for the exercise of special watchfulness and the positive cessation of extra work. How often, about examination time, do children blanch, grow pinched and thinner than before. Nothing much more serious than this could happen during the precious developmental period. The young plant would never stand the strain of wind and weather changes if it had to stand up before them. To make children precocious is not to foster greatness later in life but always the reverse.

Physicians should impress upon parents the necessity for regarding failure to reach the average weight as a sign that children should not be pushed or even encouraged to do serious work in early life, and to consider loss of weight during the years before puberty as a positive danger signal. The standard given by Hope and Browne in their recently-issued "School Hygiene" forms a ready guide. At five years of age a child should weigh about as many pounds as it is inches high. This is about forty. If sturdy it should weigh a pound or two more. The rate of increase should be about two pounds per inch of growth with a tendency for the proportion of weight rather to increase. Excess of weight in proportion to height is a favorable sign, while a deficiency in weight is unfavorable. For the child to be much below this standard is to subject it to the risk of every infection that may happen its way, for its resistive vitality is below par. For the child to drop from its normal

weight because of over-pressure at school should be the signal for the physician to insist on the active intellectual work being given up. When children are growing rapidly and their height-weight ratio is disturbed, they should have long hours of rest, at least nine hours at night and an extra hour in the day time, and all fatiguing occupations, even games, should be interdicted for a time. The developmental period is too precious for the after-life, and any possible intellectual benefit of too little significance to allow of trifling in this matter. Mental training may be compensated for later, but physical development never; and the weight constitutes a ready and easily recognized index of how much may be allowed so that one shall not interfere with the other.

The Section on Diseases of Children of the American Medical Association is making every effort to have an attractive program for the Section at the meeting of the Association at Saratoga Springs, June 10th-13th. The officers of the Section are: H. M. McClanahan, M.D., Chairman, Omaha, Neb.; Frank X. Walls, M.D., Secretary, 103 State Street, Chicago; Executive Committee: H. E. Tuley, M.D., Louisville; Edwin Rosenthal, M.D., Philadelphia; Samuel W. Kelley, M.D., Cleveland.

The Ohio State Pediatric Society will hold its next annual meeting on May 27-28th at Toledo, O. Beside an extensive program of papers, a special address will be given at the evening session on May 27th by Dr. F. X. Dercum, of Philadelphia, on "Mental Disorders of Children."

At the Meeting of the Section on Pediatrics of the New York Academy of Medicine to be held on Thursday, May 8th, the following papers will be read: I. "The Etiology and Prophylaxis of the Summer Diarrhea of Infancy," by Dr. Henry Heiman. II. "The Renal Complications," by Dr. John Lovett Morse. III. "The Treatment of Summer Diarrhea," by Dr. Charles G. Kerley.

Bibliography.

The International Medical Annual, a Year Book of Treatment and Practitioner's Index. By Thirty-six Contributors. Twentieth year. 1902. New York and Chicago: E. B. Treat & Co. Pp. xi.-688. Illustrated. Price \$3.00.

The publishers of "The Medical Annual" celebrate the twentieth year by the issue of an unusually well-printed and illustrated volume. Among the list of contributors are R. Abbe, H. D. Chapin, H. P. Loomis, Boardman Reed and G. M. Hammond.

Particular interest attaches to the article on toxins and antitoxins by Murrell of London and McFarland of Philadelphia. The editors express their support of the views of Behring and Ehrlich that the toxin-antitoxin reaction is purely chemical in its nature.

Formic aldehyd and its various combinations have been used not only for tuberculosis but also as germicidal agents in tonsillitis, stomatitis and in skin diseases. These uses are fully described.

The pages on infant feeding, under the editorship of Chapin, contain a *résumé* of the work of White and Ladd, Babcock, Kober, Monti and Zahorsky.

"The Medical Annual" is a concise and handy book of reference. It is up-to-date, especially, it may be stated, in the articles under American editorship.

Bibliographia Lactaria, Premier et Deuxième Supplements (Années 1900, 1901) a la Bibliographie Générale des travaux parus sur le lait et sur l'ailaitement jusqu'en 1899. Par le Dr. **Henri de Rothschild.** 1900, pp. 98; 1901, pp. 106. Paris: O. Doin.

These supplements to Dr. de Rothschild's "Bibliographia Lactaria," brings the subject to the current year. The literature relating to milk is indexed in the same manner as that employed in the editor's first work. For instance, under the heading "Transmission of Disease," all writings referring to the

conveyance of disease by milk are annotated as late as the recent article by Bovaird. These supplements are important additions to the first volume.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Vol. I., March, 1902. Pp. vii.-452. Illustrated. Philadelphia and New York: Lea Brothers & Co. Price, \$10.00 per year.

In this volume of "Progressive Medicine," there are two sections that are of particular interest to the pediatrician, the first on infectious diseases, edited by Dr. F. A. Packard, and second on diseases of children, edited by Dr. F. M. Crandall.

The subject of typhoid fever, in connection with its relation to the bacillus of Eberth is reviewed, to show that as the bacillus infects the system through other channels of entrance than the intestine, the designation enteric fever is less appropriate in an etiologic sense than the sticklers for exact nomenclature would have us believe. It is certain that typhoid fever may occur without lesion of the intestine. A case in point was observed in a child of thirteen months. For the present, therefore, we may continue to use the term typhoid fever as being the less objectionable.

Infant feeding has been as usual the subject for a large number of contributions. The papers and discussions of Rotch, Holt, Chapin and many others, form the basis of a lengthy review. The diarrheas of infancy, empyema, nephritis, floating kidney, anemia and diabetes are other headings that attract attention. Hektoen's summary of the current literature on pathology is a valuable section for all clinical workers.

Creosotal in Acute Non-Tubercular Diseases of the Respiratory Organs.—Meitner states that (*Allge. Med. Central-Zeit.*, Jan. 22 and 25, 1902) in acute laryngitis, bronchitis, bronchopneumonia and pneumonia, creosotal was most effective in reducing temperature and limiting the disease. It should be administered every five to eight hours, in doses of fifteen grains to sixty grains daily, the exact division of this amount is not of much importance so long as the intervals between the doses are not too long. The odor of creosote is soon observed in the perspiration which accompanies the fall of temperature. The drug is excreted by the kidneys, skin and lungs.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—
LONDON.

Meeting of March 21, 1902, at Paddington Green Children's Hospital.

DR. HENRY ASHBY (MANCHESTER), CHAIRMAN.

DR. A. E. SANSON showed a case of

HODGKIN'S DISEASE IN A GIRL AGED EIGHT YEARS.

The lymph nodes on the left side of the neck were greatly enlarged and the spleen occupied the left half of the abdomen. The child was anemic and the leucocytes were deficient. The disease started four years previously, subsequent to measles.

DR. R. HUTCHISON remarked upon the tuberculous nature of several examples of the disease he had examined and also upon the impossibility of determining post-mortem by the naked eye whether they were tuberculous or not.

DR. HARCOURT GERVIS showed a case of

DOUBLE AORTIC DISEASE IN A BOY OF THIRTEEN YEARS,
in whom a presystolic murmur was present at the apex.

DR. SANSON thought the presystolic murmur did not indicate mitral stenosis, but was an example of Flint's murmur.

DR. MORISON was of opinion that pericardial adhesions were responsible in part for the enlargement of the heart, and spoke of the propriety of surgical interference in selected cases.

DR. THEODORE FISHER considered that pericardial adhesions to the chest wall did not produce cardiac enlargement, and consequently thought surgical interference would be inadvisable, even if the case could be diagnosed.

MR. ARNOLD LAWSON showed a case of

CONGENITAL PROPTOSIS IN A CHILD OF THREE YEARS,
and thought it due to imperfect development of the base of the skull and the orbital plates.

MR. W. H. JESSOP discussed the case and agreed with the diagnosis.

DR. HUTCHISON said he had a similar case under his care.

DR. CAUTLEY referred to the high palatine arch in the case.

DR. SUTHERLAND thought whatever mental defects were present were only apparent, and were due to defective hearing consequent upon the presence of post nasal adenoids.

DR. CAMPBELL POPE showed a case of

INFANTILE SCURVY

in a female infant aged eight and a half months which had been fed on patent foods and had developed hematuria, periosteal hemorrhages and gingivitis. The symptoms had started three months before. The existence of hematuria had suggested the presence of a renal calculus and the child had been examined by the X-rays.

DR. GEORGE CARPENTER read a paper on

SCURVY IN A RICKETY BOY AGED FIVE AND A HALF YEARS.

The gums were affected and the child's dietary, owing to his curious tastes, was very defective. He discussed the etiology of scurvy, and called attention to the difficulty which is experienced in arriving at a definite conclusion as to the exact causation of these cases.

DR. SUTHERLAND said that in his experience the prognosis was often grave.

DR. CAUTLEY discussed the question from the point of view of infant feeding, and thoroughly endorsed the remarks made by Dr. Sutherland on the injurious effects of patent foods.

DR. C. W. CHAPMAN called attention to the value of fresh milk.

THE CHAIRMAN spoke as to the obscurity of surrounding the causes of infantile scurvy.

DR. THEODORE FISHER thought that in fatal cases death might be due to secondary infection.

MR. W. P. MONTGOMERY showed

A SPECIMEN OF AN INVERTED MECKEL'S DIVERTICULUM

which had formed the apex of an ileo-colic intussusception. The condition was, he stated, a rare one, there not being more than 6 cases on record.

DR. THEODORE FISHER showed a specimen of

CONGENITAL DISEASE OF THE HEART

from a child aged four months, in which a wide communication was present between the aorta and pulmonary artery, and attached to both pulmonary and aortic valves were large vegetations.

DR. FISHER also showed a

STOMACH FROM A CASE OF DIPHTHERIA

in a child aged three years, which was dotted over with numerous petechiae. There were no petechiae elsewhere, the large intestine excepted. There had been hematemesis two days before death.

THE CHAIRMAN read a paper upon a case of

COMBINED EMPYEMA AND PURULENT PERITONITIS.

A girl of three and a half years was seized with vomiting and diarrhea followed by pleuropneumonia and peritonitis. An empyema and suppurative peritonitis followed. Pneumococci and the micrococcus tetragenus were found in the pus of the empyema and the micrococcus tetragenus in the peritoneal pus. The girl made a good recovery.

DR. FISHER said that he had made post-mortem examinations of cases of combined pleural and peritoneal infections due to the pneumococcus and other organisms.

DR. DAVID NABARIO called attention to the pathological records of the Evelina Hospital for the past year of cases in which peritonitis was associated with empyema.

Aspirin in Pediatric Practice.—Landau and Schudwak (*Die Heilkunde*, October, 1901,) give a report on the use of aspirin in the rheumatism and the rheumatic affections of children. Its action is slower than that of sodium salicylate, but its effect is more prolonged. It does not cause tinnitus and it does not produce a leucocytosis. The effect of the drug in lessening the exudation of pleurisy seems to be especially salutary and as an antipyretic in typhoid fever it is most satisfactory. It is claimed that it has a decided anticonvulsive action. From the report given it would appear that aspirin is a serviceable remedy which is especially indicated in rheumatism and allied affections as being superior to other salicylic acid preparations.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON PEDIATRICS.

Stated Meeting, March 13, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

IMBECILITY FOLLOWING SCARLET FEVER.

DR. HENRY ILLOWAY presented a four-year-old boy who had developed what was apparently a permanent imbecility after an attack of scarlet fever. This sequela was usually dependent upon a meningitis, but in this case he thought it could only be explained on the theory that it was one of the results of the general infection.

DR. CHARLES HERRMAN remarked that a number of cases had been reported in which temporary imbecility had followed not only scarlet fever but typhoid and other acute infectious diseases.

NOTES ON ACUTE JOINT DISEASES OF INFANCY.

DR. T. HALSTED MYERS read a paper with this title. He stated that the line could not be very sharply drawn between acute periostitis and acute osteomyelitis, because of the practical continuity of these structures. In making the diagnosis in acute joint diseases, some assistance might be derived from a consideration of the age of the patient. Thus, acute articular rheumatism was practically never met with in early infancy; scurvy was usually observed between the ages of eight and twenty months, and hemophilia was prone to appear about the end of the first of life. Syphilitic osteochondritis was seen early in the first year; tubercular disease was unusual so early. He had had blood examinations made in many of his tubercular abscess cases and had found a moderate leucocytosis almost uniformly present. While a leucocytosis under these conditions was thought by some to mean a secondary infection of the abscess, and hence to indicate the need for incision of the abscess, there was good authority for the belief that a moderate leucocytosis might exist without such infection. Acute osteomyelitis was usually the result of infection with staphylococci or streptococci, although exceptionally it might be due to tubercle bacilli. In osteomyelitis the joint motions were not so restricted as where

the epiphysis was involved. Syphilitic periostitis was usually seen in the first two years of life, and often in cases in which a specific history was lacking. With regard to the diagnostic value of tuberculin, Dr. Myers said that he had used it a good deal, and had come to the conclusion that a positive reaction with tuberculin pointed either to the presence of tuberculosis or syphilis. Joint infections were not infrequently observed in children having gonorrhreal vulvovaginitis, yet in such cases that he had studied staphylococci or streptococci, and not gonococci, had almost invariably been found in the diseased joints. In the mechanical treatment of the acute joint diseases of infancy, rest of the affected part and extension were usually indicated. A plaster-of-Paris spica with extension plasters underneath was often a better protection than the common hip splint. In cases of hemophilia, splints were often not available because the pressure which they produced gave rise to ecchymoses. In one case of hemophilia that he had watched for a number of years, repeated effusions into the knee joint had recovered perfectly without any treatment. In the surgical treatment, the ultimate result as well as the relief of present symptoms must be considered; therefore, in acute necrosis or dactylitis he advised against removal of the entire shaft until the new bone had formed to preserve the shape of the limb. Besides, incision in acute suppurative epiphysitis, care should be taken to prevent dislocation afterwards.

CHRONIC JOINT DISEASES IN CHILDREN.

DR. HENRY LING TAYLOR was the author of this paper. He said that in over 90 per cent. of the cases of chronic joint disease in children met with in our large orthopedic clinics the underlying disease was tuberculosis. True, there was a certain number of rheumatic, traumatic and syphilitic joints, as well as certain joint diseases following the acute infections, but many of the latter cases were tuberculous. The infrequency of syphilitic joint disease in the large clinics was worthy of remark. It was now known that dactylitis was commonly tuberculous. Acute suppurative arthritis, if promptly treated by incision and drainage, would seldom become chronic. Dr. Taylor warned especially against the common practice of jumping to the conclusion that a painful joint in a child justified the diagnosis of rheumatism. This was particularly true if only one joint were

affected. One of the chief characteristics of tuberculous joint disease was its insidiousness, the existence of the disease often being unsuspected until brought out by some trauma, usually of a trivial nature. The acute infectious diseases, particularly pertussis and measles, were often followed by vertebral tuberculosis. In the stage of invasion, pain, local heat and constitutional disturbance might all be absent. Pain, when present in vertebral or hip disease, was usually referred to the terminal filaments of the affected nerves, and in the case of spinal disease varied with the region of the spine affected. Gastralgia was such a common symptom in disease of the vertebra that its persistence should lead to a thorough examination of the spinal column. Sometimes there is no pain, the child being only peevish and not inclined to move about. Special emphasis was laid on the fact that pressure over the spinous processes to elicit tenderness gives no reliable information. Limitation of motion at the hip was the earliest and most delicate test of disease of this joint. The young graduate in medicine had a deeply-rooted belief in the presence of pain in the knee in all cases of hip disease, but, as a matter of fact, this pain was often absent, moreover disease of the lumbar spine and other conditions sometimes caused pain in the knee. According to the author's experience rickets seemed to afford a relative immunity to bone tuberculosis, and it would be interesting to learn if this immunity extended to tuberculosis of the meninges and of the viscera.

DR. A. L. FISK spoke of acute suppurative joint disease in children. He said that in his earlier cases the bacteriological examination had only included the detection of streptococci or staphylococci, but more recently an effort had been made to determine the presence of the pneumococcus or the previous occurrence of a pneumonia, and these had been noted in several instances. As to treatment, this had consisted in incision and irrigation of the diseased joint with a mixture composed of equal parts of alcohol and carbolic acid. This was employed because it was less severe than the pure carbolic acid, and seemed equally effective.

DR. H. W. BERG spoke of the joint affections occurring in children in connection with the acute infectious diseases. He said that the milder grades of polyarthritis in such cases might be overlooked unless the child were examined with considerable

care. Although these joint affections were now known to be rheumatic, he had found the salicylates the best remedies in such cases. He had previously reported 6 cases of joint infection in which, contrary to the usual rule, they had gone on to changes in the bone, and the joints had ultimately required treatment by immobilization. The general practitioner was prone to diagnose chronic joint disease as rheumatism, but he had known orthopedists to diagnose as bone tuberculosis a case of articular rheumatism. If the rheumatism were confined to one joint, and particularly if that joint were the hip, the differential diagnosis was difficult.

DR. R. G. FREEMAN said that while rheumatism was almost never met with in the New York Foundling Hospital, when the children are under three years of age, septicemic joint affections were not very rare.

Treatment of Papilloma Laryngis in Children.—Lindt describes (*Con. Blatt f. Schweiz. Aerzt.* Jan. 15, 1902) a case of constantly recurring soft papillomata on the vocal chords of a four-year-old boy who had been hoarse from infancy. After two years of vigilant treatment in the hospital, repeated extirpation of the tumors by tracheotomy or laryngo-fissure, intubation, etc., the tendency to the formation of papillomata seemed to have died out, and the boy was dismissed in good health and with only a slight trace of hoarseness in his speech and no respiratory disturbances nor stridor at any time since. Radical extermination of the papillomata has been only exceptionally successful in such cases, but the fact seems to be established that after a certain length of time, months or years, the tendency to papillomatous proliferation is lost. Lori's catheters render great assistance, as it is possible to remove the tumors with them without injury to the most wildly struggling child. Lindt derived the greatest benefit from a glass canula with a large opening in the side, which was inserted in the larynx and fastened by threads emerging from the tracheal wound and passing around the neck. The opening was closed during the day and the child breathed naturally. At night the plug was removed and he breathed through the opening. The removal of the papillomata is always indicated, as they will interfere with breathing and speaking even if they do not increase in size, and there is always a possibility that they will not recur. When the case comes under treatment just as the tendency is waning, the results of a single operation may prove brilliantly successful. Otherwise extreme patience and perseverance are indispensable.

—*Journal of the American Medical Association.*

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON PEDIATRICS.

Stated Meeting, April 10, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

SARCOMA OF THE LUNG.

DR. LOUIS FISCHER reported a case of this rare condition, (see page 339).

VACCINATION PACKET.

DR. B. VAN DOREN HEDGES, of Plainfield, N. J., exhibited a convenient vaccination packet that he had had made to facilitate this part of the work of the general practitioner. It contains one bottle of liquid soap, one bottle of alcohol, some Bernays' compressed sponges, a tube of sterilized needles and several vaccination shields made of three or four layers of sterilized gauze. He said that he had found most of the vaccination shields on the market objectionable because they produced lateral constriction of the part. The one he used did not do this, and being held in place by strips of plaster it afforded a perfect protection of the vaccination from the entrance of germs.

DR. JOHN H. HUDDLESTON suggested that the package should contain a sterile slip for rubbing in liquid vaccine, as this was not easily done with a needle.

DR. R. G. FREEMAN opposed this addition on the ground that the needle, being so easily made sterile, was more suitable.

DR. F. M. CRANDALL said that the gauze shield could not be applied until the vaccination had dried, and waiting for this to take place would consume valuable time in office practice. His own plan was to apply a large corn plaster, telling the person to remove it after three days.

DR. CHARLES FARNHAM COLLINS described his vaccination shield. This consists of two pads of sterile surgical gauze. A hole is cut out of the lower pad, and the latter applied to the part vaccinated. Over this is placed the other gauze pad, and the whole is kept in place by strips of adhesive plaster. This constitutes an aseptic surgical dressing which may be applied without waiting for the vaccination to dry.

DR. W. S. STOKES said that he was accustomed to apply a small piece of rubber tissue immediately after vaccinating; and,

as the chances of infection were slight after the vaccination had "taken," a simple gauze dressing was all that was necessary at that stage.

DR. F. A. KINCH, of Westfield, N. J., said that his first, or temporary dressing consisted of a little tent improvised out of a disc of moistened cardboard, from which a segment had been cut. This could be applied immediately, and was easily held in place by strips of plaster.

THE PROGRESSIVE PRINCIPLE IN RATIONAL INFANT FEEDING.

DR. HENRY L. COIT, of Newark, N. J., read this paper. (See page 321).

THE FEEDING OF CHILDREN DURING THEIR SECOND YEAR.

DR. THOMAS S. SOUTHWORTH presented this paper. (See page 331).

DR. LEROY M. YALE opened the general discussion on these papers. He expressed his gratification at the recognition given in both papers to the needs of the *individual* baby, thus disproving the notion that there is any such thing as an average baby any more than an average adult. It was just as important to carefully arrange the diet of the second year as of the first, though carelessness in this respect would not give rise to such immediately disastrous results. The physician and the parents of the child often came into conflict at this period, because the former saw no occasion to change the diet unless there was to be a corresponding advantage to the child; whereas the parents often seemed to be actuated by a desire to add everything possible to the dietary that was not known to be distinctly injurious. He was of the opinion that up to the age of eighteen months very few children could take with benefit undiluted or unmodified cow's milk. He was thoroughly in accord with the rules laid down about the use of fruits, but was timid about using potato in the second year, unless the child had an exceptionally vigorous digestion. His practice had taught him that it was well to consider family tendencies, especially gout, in arranging the dietary of the second year. Many of the articles that Dr. Southworth had included in this dietary he would be disposed to postpone giving until after the age of twenty-one months. With regard to beef juice, it should be remembered that its proteid value was not equal to that of full milk in the

same quantity, but its stimulating effect was useful therapeutically—in other words, he regarded beef juice as a sauce rather than a food.

DR. L. EMMETT HOLT agreed with the principles so well laid down by Dr. Coit, but he thought Dr. Coit's method might be still further simplified. His own method for the early months was to start with milk sugar one ounce, lime-water one ounce and sufficient water to make twenty ounces as the general basis, and then added increasing quantities of 10 per cent. milk, using in each case enough water to make the total quantity twenty ounces. Thus, by adding successively, as the needs of the child seemed to demand, two, three, four, five or six ounces of 10 per cent. milk, he obtained the following percentages: Fat, 1; sugar, 5.5; proteids, 0.33; fat, 1.5; sugar, 5.5; proteids, 0.5; fat, 2; sugar, 6; proteids, 0.6; fat, 2.5; sugar, 6; proteids, 0.8; fat, 3; sugar, 6; proteids, 1. Much unnecessary difficulty was experienced in feeding children by allowing the formation of bad habits of eating. If, as often happened, the child refused cereals and vegetables, and would only take meat, it was only necessary to serve the meals in courses, reserving to the last the meat, and informing the child that he could only have the meat if he ate the other things. He differed from Dr. Southworth regarding the use of the bottle during the second year. According to his experience, if the child were allowed to take the bottle so long, it would often insist upon keeping the bottle until the age of three or four years, or else would refuse to take milk. For this reason he preferred to get the infant accustomed to drink milk from a cup at the age of twelve or fourteen months. Potato and green vegetables should be withheld until at least the age of twenty-one months. He had been amused to hear the opinions expressed by English and German physicians regarding the diet that his little patients were taking when they went abroad. The English physicians objected strongly to giving babies cream, claiming that it was very indigestible, while the German physicians protested against the free use of beef juice. In his opinion it was most important to insist upon the prolonged cooking of cereals to be taken by little children. All of the popular cereals which are supposed to require only a few minutes' cooking, should be cooked at least four or five times longer than stated in the directions, and in order to do this it was usually best to

have the cereal needed for the child's breakfast prepared the night before.

DR. FLOYD M. CRANDALL commented upon the disposition shown by some physicians, as well as by the laity generally, to let children of two years shift for themselves in the matter of diet. He was not in the habit of making any very material change in the diet of the latter part of the first year until after the age of fourteen or fifteen months. Of course, milk should be kept as the basis of the diet of the second year, but one should not neglect to add fruits. Orange juice was beneficial, and constipation could often be relieved by giving each day two or three prunes that had been boiled with a few senna leaves.

DR. CHARLES G. KERLEY said that he usually allowed babies one year old full milk, and at the age of fifteen months stopped the meal at 10 P.M., as he found they then did better on four meals a day and a more generous diet. He was chary about using beef juice as a steady diet because it had a tendency to cause looseness of the bowel with mucous discharges. Sometimes, in cases of summer diarrhea, beef juice was used as a temporary substitute for milk; but this, in his opinion, was a mistake, for, on more than one occasion, he had stopped an attack of diarrhea by withdrawing the beef juice.

DR. HENRY DWIGHT CHAPIN thought the feeding of infants during the first year was the more difficult task, though it was possible by the use of approximate percentages to render the home modification of milk quite simple. In the first place, milk that had been centrifuged was not so good for the infant because the natural fine emulsion had been destroyed. He recommended the use of the top milk of the ordinary milk bottle, as this had been separated by the deep setting process of creaming, and said that all that was necessary to remember in connection with this method of home modification, was that in the first nine ounces of the top milk the fats and proteids bear the ratio of three to one, and in the first fifteen ounces of top milk the ratio was two to one. It was important to begin with a low percentage of proteids.

DR. COIT said that he was delighted with the extremely simple method of progressive feeding outlined by Dr. Holt. He was personally in favor of eliminating the milk sugar at the age

of ten months and substituting a cereal which has been boiled in an open vessel for three hours. If a double boiler is used the cereal is subjected to a temperature less than the boiling point. It was also well, he thought, to early accustom the child to drink milk from a cup, and to give to children of eleven months bread and butter, some well-cooked cereal and milk. He objected to giving potato until the end of the second year, for the reason that most potatoes found in the market had been dug before fully ripe, and hence, while they contained starch, were indigestible.

DR. SOUTHWORTH said that his only reason for advising the bottle in the second year was that in this way the child could be persuaded easily to take a larger quantity of milk. He also believed in encouraging such children to make use of the cup at the chief meals.

Treatment of Simple Chronic Bronchitis in Infants.—

The treatment of this condition must be local and general. Local treatment, writes J. L. Daguzan (*Gaz. hebdomadaire de Médecine et de Chirurgie*, January 26, 1902), varies according to the severity of the disease. If the secretion is abundant and obstructs the bronchi, an emetic is indicated; ipecac renders excellent service for this purpose. In subacute cases revulsives are in order; dry cups, tincture of iodin or mustard poultices may be utilized. Vesicatories are on no account to be used. If gastro-intestinal disturbance be present, jalap or scammony in small doses may be given with ipecac. To drain the secretion, balsams are useful—tolu, turpentin or benzoin. The constitutional treatment is of extreme importance. If lymphatism be present, cod-liver oil must be tried; if it be not well borne, prescribe syrup of the iodid of iron or some similar preparation. To rachitics give oil of phosphorus or calcium lactophosphate. Iron preparations are indicated for debilitated children. While tonics are not to be neglected, preparations which are based on alcohol are not recommended. Hygienic treatment should really be considered first. Without a well-chosen diet, substantial and easily assimilated, nothing can be permanently accomplished. During an exacerbation the patient must be ordered to bed. In the intervals sojourn in the country is to be urged. Moderate exercise and massage will augment general nutrition.—*Medical News*.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, Tuesday, February 11, 1902.

DR. SAMUEL McC. HAMILL, PRESIDENT.

DR. J. H. W. RHEIN exhibited a

CASE OF HABIT TIC

in a child two years and three months of age. The patient had suffered from a spasmodic affection of the muscles around the eyes and of the right side of the face, which at first was continuous, and later recurred at frequent intervals. The family history was negative, and the child at the time of examination showed no abnormality, except the presence of a redundant fore-skin with a pin-point meatus. The mucous surface was much inflamed, and in parts adherent to the glans penis. The examination of the eye revealed a refractive error, but otherwise no abnormality. The child was circumcised, and fluid extract of cimicifuga, in ascending doses, was ordered. The patient had recovered at the end of five weeks. This case, termed "habit tic" for the first time, belongs to the class of cases described by Gower, as habit spasm; by Weir Mitchell, as habit chorea; and by Wood and Fitz, as chorea tic.

DR. E. H. SITER, by invitation, presented a girl who had had an

OPERATION FOR TUBERCULOUS PERITONITIS

with entire recovery.

DR. D. J. M. MILLER, in the discussion, stated that the case was very unusual, in that most cases of tuberculous peritonitis present themselves as localized ascites, or as nodular masses which become evident after the ascitic fluid has been absorbed. An example of the more common occurrence was to be found in a case then under his care—a girl, nine years old. There had been a local ascites in the left lower quadrant of the abdomen, the fluid had gradually been absorbed, and the child then showed a hard mass, as large as a fetal head. In Dr. Siter's case, on the contrary, the condition was purely an acute inflammatory one, and unusual for this reason.

DR. J. A. SCOTT stated that the case was very interesting to him, as further testimony of a fact which is growing to be more

and more clearly recognized; namely, that all instances of acute inflammatory trouble in the right iliac fossa are not appendicitis. He referred to Dr. Spellissy's recent article, which so clearly demonstrated that very many causes may be active in producing inflammatory trouble in the right iliac fossa. The method of onset of tubercular peritonitis in its various forms is very interesting; he had recently been observing a case that was of interest in connection with the one reported by Dr. Siter. A young woman had had four attacks of what seemed to be appendicitis. For the last one, she was operated upon; and it was found that the condition was not appendicitis, but a wide-spread fibrinous peritonitis. The adhesions which had formed were broken up on the right side, and the colon, nearly as far as the splenic flexure, was freed. It was, however, necessary to do another operation on the left side, because of increasing adhesions in that region. This case was certainly not appendicitis, and did not seem to be tubercular peritonitis; it was chronic peritonitis, without any evident local cause. While its nature was obscure, it is possible that it was a beginning tubercular peritonitis.

DR. STENGEL, in connection with operation in tubercular peritonitis, referred to operation in disseminated cancer of the peritoneum, and to the improvement that sometimes follows the mere opening of the peritoneal cavity and the removal of the fluid. His attention had been particularly directed to this by Dr. Penrose, who had pointed out the fact that these cases of peritoneal cancer run a course which, clinically, is midway between that of malignant and infectious processes. They, therefore, have a certain relation to tuberculous peritonitis from the clinical standpoint; and a comparison of the results in the two conditions is, consequently, of some interest. The most favorable cases for operation are those which follow bilateral, papilliferous ovarian growths; in some instances, these cases have shown decided improvement after operation, although the improvement is, of course, only temporary. Dr. Stengel said that he knew personally of 3 cases in which operation had been carried out, and the patient had, for the time being, decidedly improved. He had had personal experience with several cases of tubercular peritonitis that had been operated upon with improvement, but he called attention to the fact that some of the cases which have been reported as instances of cure of tubercular peritonitis by

operation were really instances of pseudotuberculosis. An example of this may be found in a case reported in Berlin, soon after this method of treating tubercular peritonitis came out. Operation was carried out in this case with apparently brilliant results. It was ultimately learned, however, that the case was not one of tubercular peritonitis, and that the nodules felt were small fibrous growths.

DR. CHARLES W. BURR presented cases of

IDIOPATHIC MUSCULAR ATROPHY, AND OF SPINA BIFIDA.

DR. GRAHAM considered that as Dr. Burr had said, there was some question as to whether the second case was a simple spina bifida or not; indeed, he felt some doubt as to whether spina bifida actually existed in the case. He was unable to detect any aperture in the spinal column, the nutrition of the structures covering the swelling was unusually good, and the tumor seemed too firm for spina bifida. If it were an instance of the latter, he thought that it was one of those cases in which the communication with the spinal canal had been shut off.

DR. SCHAMBERG noted, as to the existence of syphilis in the case, that the child had typical Hutchinson's teeth and a saddle-back nose. Either of these would be strongly suggestive of syphilis, and the two together were practically convincing indices. As to the ulcers on the buttocks, however, he did not believe that these could be considered syphilitic; the surface of the ulcers was too dry and clean, contrasting in this respect with syphilitic ulcers, which regularly exhibit a free discharge. The thought had passed through his mind that it was not at all impossible that there was more than a coincidence between the spina bifida and the syphilis, and that it was possible that a congenital syphilis had caused the developmental error which had resulted in the spina bifida.

DR. J. A. SCOTT directed attention to the fact that the mass was in the common situation of sacral teratomata. He believed that spina bifida was present in the case, but thought it possible that it might be an instance of a combination of spina bifida and sacral teratoma. He had recently seen a case at the Pennsylvania Hospital in which operation upon a growth in this region was carried out because the mass was suppurating. The tumor proved to be a typical mixed tumor of the teratoma type; it did not show a spina bifida, which is usually higher

up than the sacral region ; nor did the case show any evidence of paralysis of the limbs, the bones, or the bladder, such as is found in this case.

DR. ESHNER, in discussing the case of idiopathic muscular atrophy, called attention to the fact that this affection belongs to a general class of disorders, including a number of clinical types, in which the muscular condition is one of dystrophy, rather than of atrophy—replacement of muscular by fatty and connective tissue; and he thought it better to use the term progressive muscular dystrophy, than to bring in the less fitting one of atrophy. In connection with the differential diagnosis, he also drew attention to the fact that the electrical reactions in these cases are of importance. The reaction of degeneration is not present, but the electric reaction becomes quantitatively less.

DR. ALFRED STENGEL reported several cases of
RHEUMATIC DISEASE IN CHILDHOOD.

After discussing briefly the etiology of various rheumatoid affections, he reported cases illustrated with photographs and skiagraphs. Two of these were cases of rheumatoid arthritis, one beginning at the age of fifteen, and the other at an earlier, but uncertain age. He called particular attention to a class of cases of rheumatism followed by enlargements and deformities of the joints, which resembles rheumatoid arthritis closely, but differs from this in pathology, clinical course, and treatment. The condition referred to is one of subacute or chronic rheumatism following acute attacks. It tends to involve the smaller joints conspicuously, and thus gives to the clinical picture a striking resemblance to rheumatoid arthritis. The disease is though strictly speaking, rheumatism.

DR. ESHNER called attention to the fact that the prevailing view concerning joint affections is that the numerous forms of arthritis are probably dependent upon different causes. Arthritis occurs in association with such a variety of infectious conditions, that he believed it probable that almost any infectious process might cause arthritis. He thought, however, that there was one specific affection which might be given the definite name of acute articular rheumatism, or rheumatic fever. In his experience, this condition practically yielded regularly to the use of the salicylates ; and he had wondered whether those

cases of Dr. Stengel's that did not yield to the use of salicylates were not irregular instances that did not belong to the class of acute articular rheumatism. As to chronic rheumatism, he felt convinced that many cases called by this name are not really such, and that chronic arthritic conditions are of decidedly variable nature. Rheumatoid arthritis he considered a bad name, because it implies a distinct relation to rheumatism. Deforming arthritis is a good descriptive term, and is not open to the same objection. There appear to be, further, several kinds of deforming arthritis.

DR. SCHAMBERG, in connection with the question of bacteriological findings in acute rheumatism, said that in the case of a young girl who had died at the Municipal Hospital from purpura, endocarditis, and arthritis, following scarlet fever, they had obtained from the heart's blood a bacillus morphologically identical with the diphtheria bacillus. It had not been further identified, and he merely mentioned the fact as of interest in connection with the bacteriology of acute arthritic conditions.

DR. JAY F. SCHAMBERG read a paper entitled
AN OUTBREAK OF CHICKEN-POX AMONG CHILDREN CONVALESCENT
FROM SMALLPOX, WITH REMARKS UPON THE RELATIONSHIP
OF THESE TWO DISEASES.

He referred to the views of Ferdinand Hebra who, a little over a quarter of a century ago, was a strong champion of the theory of the identity of variola and varicella. His collaborator and successor, Kaposi, still adheres to the view of the unity of these diseases, and teaches it at the University of Vienna. Hebra and Kaposi not only gave to the mildest forms of smallpox the designation varicella, but they went to the inconceivable extreme of denying the existence of a distinct and separate disease, such as chicken-pox.

He reported an outbreak of chicken-pox among children recovering from smallpox in the Municipal Hospital of Philadelphia. The varicella was introduced by a patient sent into the hospital under an erroneous diagnosis. In all, thirty-three children contracted chicken-pox, the disease spreading from old to new patients, and remaining in the children's ward for over three months. The earliest period at which the disease was manifested was the seventeenth day of the variolous eruption. In this child, the secondary fever, due to the pustulation and crusting on the skin, was still in the neighborhood of 104° F. In most of the

cases, the onset of varicelli occurred much later in the course of smallpox—about the thirtieth day of the eruption. The vast majority of the children were exposed some time before the infection was received. This is confirmatory of the view that one acute exanthematous disease is not likely to be contracted during the acute stage of another, but rather during convalescence therefrom. Curschmann states that there is but little likelihood of smallpox being transmitted to patients during the early period of measles or scarlet fever.

He does not consider chicken-pox as rare in adults as it is commonly believed to be. He has seen about 10 or 12 such cases within the past twelve months.

DR. FUSSELL said that he had been exceedingly surprised to hear that any recognized authority still believed that these two affections are the same disease. He wished to ask Dr. Schamberg whether chicken-pox is really more prevalent during an epidemic of smallpox. This is frequently stated to be the case, and there is some superficial evidence to show that it may be true. He thought, however, that it was more probable that during an epidemic of smallpox attention is more closely directed to cases of chicken-pox; and that, as a consequence, a larger number of such cases seem to be observed, although they are, perhaps, not more numerous.

DR. SCHAMBERG said that he did not know, from personal experience or from an examination of the literature, whether chicken-pox does tend to show any increase during smallpox epidemics. He believed, however, that Dr. Fussell was right in his view that if an apparent increase in chicken-pox occurs, it is to be attributed to the greater prominence given to such cases when smallpox is prevalent.

Buttermilk as Infant Food.—Salge and Heubner report (*Therapie der Gegenwart*, October, 1901,) that after extensive tests their experience has confirmed the assertions of the Dutch physicians in regard to the way in which healthy and sick infants thrive on buttermilk. It must be less than twenty-four hours old, made from sour cream, mixed with sugar and flour and brought to a boil three times. It represents 714 calorics to the liter. The stools are very fine, but scanty. The weight shows a regular upward curve. Salge found it especially beneficial as the first food after dyspepsia and acute intestinal disturbances, in atrophy, and for supplementing nursing.—*Journal of the American Medical Association.*

Current Literature.

PATHOLOGY.

Higley, H. A.: The Detection of Typhoid Bacilli in the Feces as a Diagnostic Test of Typhoid Fever, and a Comparison of this Test with the Widal Reaction. (*Medical News*. No. 1524.)

The method used in isolating typhoid bacilli from the feces was that recommended by Hiss. In the Widal tests fresh fluid blood serum was used, the requisite dilutions being made with a capillary pipette. The 21 cases examined included 9 between the ages of six and fifteen years. The typhoid bacilli were isolated from the feces in 20 cases, while a positive Widal was obtained in only 18. It appeared on an average, on the twelfth day, the bacilli, were successfully isolated on the tenth day, on an average, and were found during the second week in 17 cases. The Widal reaction was positive before the fourteenth day in 12 cases only.

In 18 cases attempts were made to isolate the bacilli from the urine, and they were found in 8 cases from the nineteenth to the thirty-third day. Albumin was present in every one of the positive cases.

During the second week, therefore, isolation of typhoid bacilli from the feces gave slightly better results than did the Widal test. In combination, these two tests, when carefully and persistently made, render material aid in the diagnosis of this disease previous to the appearance of distinctive clinical symptoms.

DERMATOLOGY.

Meachen, G. Norman: Case of Leucotrichia Annularis Associated with Developmental and Other Pigmentary Disorders. (*The British Journal of Dermatology*. No. 161.)

Whitish hairs were noted in the eight-year-old patient when he was but three months old. It appeared later that each individual hair was the seat of an anomaly consisting of alternate segments of brown and white. The case was a typical example of ringed hair, of which there are but 9 other recorded examples.

The nature of this phenomenon is purely conjectual. A pigmentary anomaly of the skin, dating also from early infancy, was also present in Meachen's case, viz.: patches of light brown color scattered over the trunk and also to a limited extent on some of the extremities. Unna's designation *leucotrichia annularis*, is adopted as the most suitable.

MEDICINE.

Andrade, E. : A Case of Ophthalmia Neonatorum Caused by the Diplobacillus of Morax and Axenfeld. (*American Journal of the Medical Sciences.* Vol. cxxiii., No. 2.)

While all observers agree that ophthalmia neonatorum assumes a very severe character when due to the gonococcus, they concede that the disease may be caused by other organisms—the diplococcus, the streptococcus, the bacillus coli communis and the micrococcus aurens. The following is the first case on record in which the diplobacillus of Morax and Axenfeld was present, it being usually associated only with subacute catarrhal conjunctivitis. A three-days-old baby presented slight edema of the lids and a small amount of purulent exudate in both eyes, more marked in the right. The stump of the cord and the left ear also suppurated, but were soon cured. The ophthalmia resisted treatment with protargol and even with silver nitrate. Bacteriological examination demonstrated the presence of a pure culture of the diplobacillus of Morax and Axenfeld. As zinc salts have an almost specific action on this organism a 2½ per cent. solution of zinc sulphate was instilled once a day and the eyes got well rapidly. The disease had lasted nearly three months.

Lees, D. B. : The Heart of the Child. (*The Lancet.* No. 4092. 1902.)

The stethoscope should be kept out of sight until after inspection, palpation and percussion have been used. By the last means the size of the left ventricle and the right auricle can usually be determined with very considerable accuracy, while little or nothing can be determined about the size of the left auricle, and only an approximate opinion of the size of the right ventricle can be formed. Dulness, due to the right auricle, may be detected in the fourth right intercostal space, even in the

normal heart. Its increase (less than one finger breadth is normal) is a matter of importance in pulmonary affections and in diseases of the left heart. In auscultating murmurs due to congenital malformations must be borne in mind. They are systolic in time; a presystolic or diastolic congenital murmur is exceedingly rare. A low, soft, systolic murmur over the tricuspid region, best heard about half way between the left edge of the sternum and the nipple line, is not very uncommon in healthy children, and does not indicate any organic disease.

In normal children the left border of cardiac dulness is distinctly internal to the nipple line. The cardiac muscle of the child is, perhaps, specially susceptible to the deleterious influence of toxins and poisonous products circulating in the blood. Diphtheria, influenza, pneumonia, typhoid fever and tuberculosis may all cause enlargement of the left ventricle. In rheumatism and chorea the extreme tendency to cardiac disease is not merely the result of the poisonous influence of a toxemia, but evidence is accumulating to prove that there is actual inflammation of the muscular substance and fibrous structures caused by the local presence of a diplococcal micro-organism.

Sodium salicylate, in adequate doses, is definitely antagonistic to the rheumatic process, and sodium bicarbonate may be given with it. Leeches and ice are of the greatest possible service to the rheumatic heart. Digitalis is not of value until the inflammation has subsided and the mechanical effects of the cardiac lesions manifest themselves. In the ventricular dilatation and enfeeblement caused by toxemia, leeches and ice are inapplicable; digitalis is sometimes of service, but the hypodermic injection of strychnin is very useful. Iron is valuable in anemic debility, and atropin, subcutaneously, may be relied on in diphtheria when danger threatens; belladonna may be given by the mouth in cases of less urgency.

Rawlins, James S.: Tetanus. (*Memphis Medical Monthly.* Vol. xxii., No. 2.)

A boy aged ten years was injured by a large splinter which broke off in his foot. The onset of the malady was mistaken for mumps by the patient's father. Tetanus was perfectly developed on the second day of the disease. The actual incubation period was six days.

The wound was cleansed and dressed and sedatives admin-

istered in increasing doses. Feeding per rectum became necessary on the fourth day. The disease meanwhile pursued its usual course, with opisthotonus and clonic waves, which were met by inhalations of chloroform. Upon the sixth day it became necessary to discontinue the bromids and chloral on account of the great prostration of the patient. Instead he received hypodermics of morphia and atropia in full doses. On the ninth day he received for the first time an injection of antitetanic serum, 10 c.cm., which was repeated every six hours until four doses had been given. It was thought that the second dose produced a decided change for the better. In the course of a convulsion on the twelfth day the diaphragm was involved and artificial respiration became necessary.

The disease improved almost imperceptibly. Chloroform was discontinued on the sixteenth and morphia and atropia on the twenty-fourth day. Opisthotonus had been so marked a feature that a bed-sore developed on the occiput. The daily dose of morphia was one and a half grains; of chloroform, two ounces.

Slagle, Charles D.: Acute Morphin Poisoning in an Infant; Recovery. (*Journal of the American Medical Association*. Vol. xxxviii., No. 7.)

A baby four weeks old was given by mistake a quarter grain of morphia, and soon became comatose and cyanotic. The pulse was but 20 per minute, weak and irregular; respiration, 4; stertorous. He was treated for collapse with strychnia and cutaneous stimulation, atropia being likewise given for its antidotal properties. The stomach was washed out with black coffee, and hot saline infusion thrown into the colon. This line of treatment was continued for five hours without cessation, and slow but steady improvement followed. On the following day the patient was out of danger. The absence of convulsions was noteworthy.

Phillips, Sidney: Rheumatism as a Cause of Epistaxis in Children. (*The Lancet*. No. 40,5.)

Ten cases are briefly narrated, in all of which there was a coincidence of nose-bleed with some serious manifestation of acute rheumatism, including chorea. Most of the patients had synovitis, and cardiac symptoms were present in about one-half the number. There were no intranasal lesions to explain the

hemorrhage. Sometimes the nose-bleed appeared at the time of the first outbreak of rheumatism, while in others the two conditions followed each other in rotation. This association of disease is complicated by the fact that epistaxis is one of the symptoms of intoxication by the salicylates. In the series of cases here reported the drug had not been administered before the nose-bleed appeared, but, on the contrary, was given afterwards with apparent benefit. But few references are found in literature as to the existence of a nose-bleed of rheumatic etiology.

Laslett, E. E.: A Case of Cancrum Oris Affecting Both Sides. (*The Lancet.* No. 4095.)

The patient, six years of age, was suffering from advanced pneumonic phthisis. A severe stomatitis developed, and the teeth loosened and came away. A black patch of noma appeared on the skin over the right side of the lower jaw. The gums had already become gangrenous, and the inside of the cheek showed discoloration. The patch on the skin extended in all directions, and lesions also appeared independently on the left cheek. The case ended fatally. Its chief interest lies in the infrequency of bilateral noma.

McKibben, W. W.: Bronchopneumonia in Epidemic Form. (*Boston Medical and Surgical Journal.* Vol. cxlvi., No. 9.)

Five cases occurred in the children of one family living in very unhygienic surroundings. An infant two months old and a little girl of three years died. The other three recovered under hospital care. Throat cultures were negative for diphtheria bacilli, and the sputum contained pneumococci and pus organisms, but no tubercle bacilli.

Kellogg, W. Clinton: A Case of Arthritic Purpura. (*American Medicine.* Vol. iii., No. 12.)

The fourteen-year-old patient had rickets in infancy and was delicate in after-years. At the age of twelve he began to suffer from gastrointestinal derangements, urticaria and epistaxis, all of which phenomena appeared to be definitely associated. At a somewhat later period the intestinal disturbance was complicated by melena, while the skin eruption became purpuric in character. Pains and soreness also developed in the knee and ankle joints, so that locomotion became difficult. The urine contains albumin and casts. At the time of writing

the condition was unchanged. The prognosis for recovery is poor.

Stanley, Arthur: On Diphtheria Antitoxin Eruptions.
(*The British Medical Journal.* No. 2146.)

Analysis of a large number of cases of diphtheria treated with antitoxin shows that over one-fourth are accompanied by a rash which appears as a rule during the second week after the exhibition of the remedy. The typical eruption is an erythema which in its localization and configuration somewhat resembles psoriasis. This spreads from the face and trunk to the limbs, and from extensor to flexor surfaces. The duration of this efflorescence is from two to five days, and desquamation is absent; or, if present, very slight. A temperature rise of 3° with malaise are the only general symptoms present. Atypical eruptions are also common—chiefly urticaria and in some cases exanthems which resemble measles and scarlatina. There is also an early transitory antitoxin rash which appears very soon after the injection, usually near the site of the latter.

Fisher, T.: Two Cases of Congenital Disease of the Left Side of the Heart. (*The British Med. Journal.* No. 2150. 1902.)

A case of congenital mitral stenosis occurred in a child fifteen months old, who had been blue at birth and suffered from attacks of dyspnea. The fingers were not clubbed. A loud systolic murmur was heard all over the cardiac area, but not behind. At the apex three sounds with something of a *bruit de galop* rhythm were audible. At autopsy the heart was found to be much hypertrophied, chiefly as to the right ventricle. The pulmonary artery was double the size of the aorta. The tricuspid orifice measured nearly 2 cm. across; but the mitral only 5 mm. The mitral stenosis was a double one, both at the base of the flaps and at their extremities. The aorta was markedly constricted immediately above the point of entrance of the ductus arteriosus, which was patent but very small. There was no family history of rheumatism, and mitral stenosis had not been suspected during life.

The second case was one of congenital aortic stenosis in a female child four and one-half months old, who died of bronchopneumonia. At the autopsy the heart was enlarged, due chiefly to hypertrophy of the left ventricle. The segments of the aortic valve were thickened and adherent to one another. No other

defects were present. The mother had had pain and swelling of the left knee three months before the child's birth, but no previous attacks of rheumatism. Congenital disease of the aortic valve is more common than similar disease of the mitral valve, and the majority of cases appear to be due to endocarditis. In this case the mother's history leaves little doubt that rheumatism was the cause.

Rocaz: Acute Lymphocythemia with Hypertrophy of the Thymus in a Child Four Years Old. (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 3.)

The boy's family and personal history was good. After an attack of simple angina, diarrhea, fever and enlargement of the spleen and lymph nodes developed. Blood examination showed that the red cells were reduced to 1,816,600 per c. mm., and the leucocytes numbered 244,900. Of these 96.66 per cent. were lymphocytes, .6 per cent. large mononuclears, 6 per cent. transitionals and 2.4 per cent. polynuclears. Eosinophiles, myelocytes, mastcells and nucleated red corpuscles were absent. The child's condition grew rapidly worse until death appeared on the twenty-fifth day. At the autopsy the hypertrophied thymus weighed 200 grams, and measured 12x10x4 cm. Microscopically there was lymphocytic infiltration of all the organs, and a large number of lymphocytes in the marrow. The onset with angina is classical. Hypertrophy of the thymus gland frequently occurs in leucemia, but no case has been reported in which the gland reached the size found in this case.

Haushalter, P., and Fruhinsholz, A.: The Frequency and Value of Tuberculous Tracheobronchial Adenopathy in Miliary Tuberculosis and in Tuberculous Meningitis. (*Arch. de Méd. des Enfants.* Vol. v., No. 3.)

Tuberculous lesions in the tracheobronchial lymph nodes were found in 74 of 78 autopsies on cases of miliary tuberculosis. There were among these cases 67 of tuberculous meningitis, of which 63 showed the adenopathy. The lesion was old in every case, and almost always most marked on the right side. In 44 cases it was the only old tuberculous lesion present, while in 29 a still older pulmonary tuberculosis was found. In a large number of cases it may exist independently of tuberculosis of the lungs. The initial tuberculous lesion in almost all the cases studied was in the tracheobronchial lymph nodes.

While miliary tuberculosis and tuberculous meningitis are, in the majority of cases, the result of a blood infection with the tubercle bacillus, much remains to be elucidated on the subject of their relationship to tracheobronchial tuberculosis.

Soumaripas, J. P.: Grippe Nephritis in Childhood.
(*Gaz. des Mal. Infantiles.* Vol. iv., No. 6.)

Nephritis following influenza is not rare in children; it occurs with mild and with severe cases, and is often followed by uremic symptoms which may appear as cerebral disturbances. In most cases recovery takes place, even after severe attacks. The onset of nephritis is often insidious, and frequent urine examinations should be made in patients with influenza. The duration of the nephritis usually varies from three to five weeks, but may be much longer. As prophylactic measures a milk diet and keeping the patient indoors are necessary even in mild cases, together with asepsis and antisepsis of the mouth, pharynx and nose. During the attack a strict milk diet is required, and the use of synapisms, cupping and caffeine with benzoate of soda. To combat the uremic symptoms purgation with scammony and jalap and the injection of artificial serum are useful.

Kelley, S. W.: A Specimen of Diphtheritic Membrane.
(*The Cleveland Medical Journal.* Vol. i., No. 1.)

The specimen was coughed up by a patient twenty years old, after intubation had been done. The membrane was a cast of the larynx, trachea, bronchi and their branches down into some of the bronchioles, and measured twelve inches in length. The girl died twenty hours later. Until the fifth day of her illness she had been treated with mercury, neither stimulants nor antitoxin having been administered before that time.

Democh, Ida: Genuine Atrophic Kidney in Infancy. (*Arch. f. Kinderhk.* Vol. xxxiii., Nos. 3-6.)

A two-months-old boy, of good family history and well at birth, developed mild convulsions, cough and edema of the lower extremities. The spleen was moderately enlarged. The urine contained albumin and casts of the granular and epithelial variety. Cardiac hypertrophy was present, the left border extending one-half centimetre beyond the mammary line. Death occurred, without convulsions, on the third day of observation. At the autopsy anasarca, hydropericardium, moderate ascites,

cardiac dilatation and hypertrophy of the left ventricle, pulmonary edema, lobular pneumonia, congested liver and spleen and granular kidneys were found. Microscopically both kidneys showed the lesion of chronic atrophic nephritis with some small cysts and slight thickening of the blood-vessel walls. The lesion was more marked in the right than in the left kidney. The author considers the kidney lesion not of fetal origin, but of about three weeks' duration, and resulting from a parenchymatous nephritis occurring with gastrointestinal catarrh. This is the third case on record of granular kidney in infancy; throughout childhood it is a rare condition.

Rachford, B. K.: Acute Influenzal Nephritis in Childhood.
(*Medical News.* Vol. lxxx., No. 11.)

Four cases are reported as occurring with the influenza, not as a sequel; the patients were from four to twelve years of age. The onset was more quick and violent than that of acute nephritis produced by other acute infections. The worst symptoms occur as a rule within six or seven days after the kidney is attacked. If complete suppression and uremia do not cause death within the first week of the disease, improvement begins and leads to recovery. It is possible that, in some of these cases, a chronic nephritis may be established, but the author has never met with such a case.

Of the reported cases, 1 died and 3 recovered. The nephritis was very marked, being hemorrhagic in 2 cases. It was neither a sequel nor a complication, but a part of the influenzal attack; *i.e.*, the kidneys are among the organs of the body which are not exempt from primary attack of the influenza poison.

Ker, Claude B.: Scarlet Fever, Measles, and German Measles—Is There a Fourth Disease? (*The Practitioner.* Vol. lxviii., No. 11.)

The differential diagnosis of scarlet fever from measles and of rubella from both is first detailed. Then the rashes which simulate these infections are differentiated from them; drug rashes, septic rashes and antitoxin rashes come under this head. The "fourth disease," as described by Clement Dukes, is characterized by an incubation period of nine to twenty-one days (approximating that of rubella); slight prodromata, none in most cases; an eruption which is brighter than scarlet fever

and covers the body in a few hours; swelling of the throat; pink conjunctivæ; enlargement of the nodes; desquamation slight, or as profuse as in scarlet fever. Recovery is the rule. The kidneys are rarely affected, and there are practically no sequelæ. The disease affords no protection against scarlatina or rubella, but is a new disease lying between these two.

After careful consideration of Dukes' views, of those of his critics, and of the writer's own experience, he would not go so far as to say that a fourth disease does not exist, but he feels that Dr. Dukes has not proved his contention.

Grant, Dundas: Case of Fibrinous Rhinitis. (*The Poly-clinic.* Vol. vi., No. 3.)

A boy aged seven years complained of stuffiness of the nose on one side which had persisted for a fortnight. The discharge was highly gelatinous and very difficult to remove. A culture revealed absence of Klebs-Löffler bacilli. There was no angina. The affected nasal fossa was syringed with lime-water—a very efficacious remedy. The boy had at the same time a herpetic eruption on the forehead, which may or may not have had some connection with the intra-nasal trouble.

Jacobson, W. H. A.: Paralysis of the Deltoid in an Infant. (*The Polyclinic.* Vol. vi., No. 3.)

A baby who fell out of bed when about nine months of age was thought to have injured his right shoulder at the time. When seen four months later the deltoid was markedly atrophied, but there was no evidence of fracture, epiphyseal injury or dislocation. It was decided that the paralysis could not have had a traumatic origin, while its restriction to a single muscle was inconsistent with a diagnosis of infantile paralysis. The infant might possibly have been "overlain" in bed, with resulting compression of the circumflex nerve.

Cantlie, James: On a Case of Achondroplasia. (*The Polyclinic.* Vol. vi., No. 3.)

The patient was a girl aged thirteen years whose stunted growth was readily seen to be due to short limbs by seating her beside an ordinary child of the same age. The upper extremities are also unnaturally short. This affection, also known as fetal rickets, is distinct from rachitis of extrauterine origin, for it consists chiefly of arrested development of those tissues which

are ossified in cartilage during early fetal life, including the large long bones, metacarpus, metatarsus and phalanges. Another structure thus affected and deformed is the base of the skull, so that the vault of the latter is somewhat expanded by way of compensation. Victims of this intrauterine disease usually die in utero or soon after birth. But few have reached adult life.

SURGERY.

Goodall, E. W.: Observations on Intubation of the Larynx. (*The Edinburgh Medical Journal.* Vol. liii., No. 561.)

One hundred and one cases were studied, of which 87 were cases of primary intubation. The instruments used were Bayeux's modification of O'Dwyer's, made by Collin of Paris; they are shorter and lighter than the American tubes, and the method of attaching the obturator to the introducer is better. In 43 cases intubation alone was performed; 9 died. A single intubation only was necessary in 29 cases, of which 6 died; in 11 there were two intubations (2 fatal), and in 3 there were three intubations (1 fatal). The length of time during which the tube was worn varied from five minutes to four days.

In 44 cases tracheotomy followed intubation; 37 were cases of diphtheria, with 12 deaths: 4 of simple laryngitis with 2 deaths, and 3 of measles with laryngitis, with 1 death. Intubation was performed from one (22 cases) to eleven (1 case) times. The reasons for the performance of tracheotomy were: because the relief after intubation was absent, partial, or not permanent, because dyspnea returned after extubation, and the child's condition became too serious to allow of intubation; sudden blocking of the tube; ulceration of the larynx; lack of skill on the operator's part. Attempts at intubation may fail because of edema of the glottis, spasm of the glottis, preliminary gagging and blocking of the larynx with mucus.

Intubation followed tracheotomy in 7 cases, in order to facilitate the final removal of the tracheotomy tube; it proved of value for that purpose.

The rule is laid down that if three insertions of the intubation tube, each of several hours' duration, fail to cure the laryngeal obstruction, tracheotomy should be performed. Frequent expulsion of the tube by coughing, a few minutes after its insertion, is also an indication for tracheotomy.

Sudden blocking of the tube occurred in 11 cases, but caused no death. It is not an objection to intubation in hospital practice. The risk of causing ulceration of the larynx is no greater after intubation than after tracheotomy, provided that care is used in introducing the tube; that the same case is not intubated more than three times, and that the operation be avoided if the larynx is much swollen. As the tube may push false membrane before it and increase the dyspnea, intubation should never be attempted without all the apparatus for tracheotomy being ready at hand. The author does not consider intubation a more difficult operation than tracheotomy, and it has the advantage that it can be practiced on the cadaver with much advantage to the student.

Sieger, F.: Tracheotomy and Intubation in Diphtheria Since the Introduction of the Serum Treatment. (*Arch. f. Kinderhk.* Vol. xxxiii., No. 3-6.)

From a study of the material from ninety-three hospitals in middle Europe, the following conclusions were reached: In hospital practice tracheotomy and intubation cases have the same mortality rate. In order that these results may be obtained, primary and secondary tracheotomy must be used in connection with intubation. The introduction of intubation has not lowered the death rate in the hospitals accustomed to the use of tracheotomy. Facultative intubation makes it possible to dispense with tracheotomy in two-thirds of all cases. The best results can only be obtained by the use of both procedures.

A plea is made for the careful observation of a large number of cases in order to establish the exact indications for primary intubation and tracheotomy, and for the time and conditions demanding secondary tracheotomy.

Primrose, A.: The Operative Treatment of Chronic Bright's Disease. (*The Canadian Journal of Medicine and Surgery.* Vol. xi., No. 3.)

A boy of ten years suffered from chronic nephritis with anasarca and ascites for six months before coming under the writer's care. The history of the onset of the kidney disease was not known. The heart was normal, but rapid; the urine contained 1.6 per cent. of albumin, hyaline, fatty, granular and epithelial casts. Paracentesis abdominis gave relief for a few days, but had to be repeated. Finally, an operation was performed,

the right kidney being cut down upon in the lumbar region. It was found to be greatly enlarged and ashy purple in color. Needling did not cause hemorrhage. The capsule was then cut along the convex border, the incision extending one-quarter of an inch into the kidney substance and being one and a half inches long. A drainage tube was put in, a few sutures introduced, and a piece of iodoform gauze and dressing applied. During the first twenty-four hours after the operation only seven ounces of urine were passed and the edema increased. Improvement then began and was marked for three weeks. As the ascites gradually returned, and tapping was followed by a rapid accumulation of fluid in the abdomen, it was decided to operate on the other kidney. One month after the first operation the left kidney was cut down upon and completely stripped of its capsule. Pneumonia developed one week later, but the boy recovered from the attack. Sixty-two days after the last operation the urine contained a mere trace of albumin and a very few casts. There was neither edema nor ascites, and the child was improving in strength.

The explanation of this good result is not clear. In the case of acute nephritis, Mr. Reginald Harrison has suggested that the operation of splitting the kidney capsule relieves renal tension and thus affords relief and may effect a cure. But, in cases of chronic nephritis, this explanation is not satisfactory. The case reported in this paper is unique.

Malcolm, J. D.: Removal of a Sarcomatous Tumor From the Tail of the Pancreas of a Child Four Years and Eight Months Old. (*The Lancet.* No. 4096. 1902.)

Swelling of the abdomen was first noticed at the age of four years, but anemia and emaciation were so marked that an operation seemed contra-indicated. After five months of tonic treatment the general condition had improved greatly, and the tumor on the left side had grown but slightly. It distended the hollow of the left loin, bulged the side outwards and extended across the abdomen to the outer edge of the right rectus muscle and down to the superior iliac spines. It was smooth and elastic on palpation, and was diagnosed as a kidney tumor. At the operation adhesions between the tumor and the spleen were readily divided, but pancreatic tissue had to be cut in order to remove the growth. The child did not survive the operation.

Autopsy showed both kidneys to be normal; there was a second new growth in the gastrohepatic omentum. This was found to be a metastasis in the portal vein. Both tumors were fibrosarcomatous in nature. The differential diagnosis between an enlarged kidney and a tumor of the tail of the pancreas may be quite impossible.

Freeman, Leonard: *An Operation for Spina Bifida, with Report of a Successful Case.* (*Journal of the American Medical Association.* Vol. xxxviii., No. 12.)

A baby of seven weeks had a tumor in the lumbosacral region; it was the size of a goose-egg, having steadily increased in size since birth. An elliptical incision was made about the base of the mass, and the sac, which was intimately adherent to the skin, was opened at once. The elongated conus was isolated from the sac and replaced within the spine, the opening into the latter being large enough to admit a finger. The sac was amputated and the stump likewise returned to the medullary cavity. The orifice was then whipped over with silver wire and the external wound closed. Recovery was uneventful.

Stebbins, Walter W.: *Report of a Case of Foreign Body in the Trachea.* (*Medical Record.* No. 1639.)

A one-year-old boy was seized with paroxysms of cough and asphyxia after playing with an ear of corn. Applying the stethoscope over the trachea the author heard a foreign body moving with the respiratory current. With each expiration it appeared to strike the vocal cords and produce a stridulous sound.

Inversion having failed, vomiting was induced with the same result. In each case the boy was made unconscious, and artificial respiration became necessary. Finally tracheotomy was performed and a kernel of corn was immediately ejected through the tracheal wound. The boy recovered without incident. In another case the author would practice tracheotomy without delay.

Stevens, B. Crossfield. *A Case of Persistent Cloaca.* (*The Lancet.* No. 4099.)

A newly born female infant was affected with cyanosis, due probably to aspiration of mucus *intra partum*. The midwife had administered castor oil, and had then discovered that there was

no anal orifice. The author at once made an incision over the site of the rectum, but found no bowel. He was about to perform colotomy when he noticed meconium exuding from the vulva. The diagnosis was then made of persistent cloaca. The bowel was pulled down with forceps introduced into the vagina, and an artificial anus established in the normal site. The infant died on the fourth day, probably from inanition, cyanosis and aspiration pneumonia.

Pearson, S. Vere.: The Acute Retropharyngeal Abscess of Infants, (*Lancet.* No. 4078. 1901.)

The author reports a series of cases and emphasizes the fact that when a correct diagnosis is not made the cases usually terminate fatally, but that the prognosis is fairly good when the diagnosis is correctly established. The symptoms of importance he considers to be: Age under two; voice muffled; difficulty in nursing or pain on swallowing; restlessness; loss of appetite; constitutional signs. There often precedes or accompanies these symptoms a purulent nasal discharge. Often there is obstruction to respiration with much recession. Tender, enlarged lymph nodes in neck. Tonsils red, swollen. No croupy cough of laryngitis. One side of neck fuller than the other. Treatment: If constitutional symptoms are slight and swelling is small, treat expectantly. Immediate operation not necessary, except in very bad cases, as swelling may subside. The danger of waiting is sudden attacks of dyspnea.

The author recommends Hilton's external incision behind the sternocleidomastoid, as opening in the pharynx allows pus to be continually swallowed.

Rosenthal, Edwin: Prolonged Intubation. (*Journal of the American Medical Association.* Vol. xxxviii., No. 12.)

In a normal case of laryngeal diphtheria extubation should be first attempted at the end of 120 hours. If reintubation becomes necessary at any time, the case should be regarded as abnormal.

In enumerating the causes of abnormal or prolonged intubation, trauma should not be included, because it cannot occur under skilful hands. The first causal element to be mentioned is chronic croup, or, in other words, prolongation of the original disease. This protraction is thought to be due to the treatment employed, including tracheotomy, intubation and non-surgical

measures. In some cases this late croup appears to be a reinfection.

Next to persistence of the original condition should be mentioned certain sequelæ of the primary attack, such as paralysis of the vocal cords. The third causal element is the mechanical disturbance caused by the operation itself and by wearing the tube. This class is represented by edema glottitis, necrosis of the cricoid cartilage, cicatrices, exuberant granulations.

Treatment (prophylaxis) should comprise a sufficient quantity at the start of antitoxin and the use of very mild antiseptics, such as weak boric acid solution or well-diluted peroxid of hydrogen. If the condition of prolonged intubation is actually present, the tube removed should be followed by others of smaller size; and if this resource fail, tracheotomy should be performed.

Wilson, H. Augustus : Tuberculous Joint Disease. (*New York Medical Journal.* No. 1216.)

The insidious onset of bone tuberculosis is indicated by the persistence of trivial symptoms comprising pain in various localities of the nature of rheumatism, colic, etc., from which no relief is obtained; intermittent disability, night cries, etc. Upon examination these rheumatoid or growing pains, so-called, may be found to be due to muscular rigidity about some one of the joints. This rigidity tends to pass into atrophy, often rapidly. With the first sleep the rigid muscles relax, to become suddenly stiffened from slight causes, producing thereby the outcries. After atrophy sets in, the joint takes on a spindle shape which simulates enlargement.

It is at this stage of the disease that the family practitioner often commits two serious errors. First, he examines the child under general anesthesia and by relaxing the rigid muscles deprives himself of his principal diagnostic resource. His second great error is the endeavor to induce pain or muscular defence by causing concussion of the articulating surfaces of the suspected joint. This practice is distinctly meddlesome and injurious. A special error on the part of some teachers is the division of tuberculous joint disease into three stages each with its separate symptoms, etc. Treatment should be so conducted that ankylosis while not specially desired is not dreaded.

HYGIENE AND THERAPEUTICS.

Kiefer, Guy L.: The Restriction of Scarlet Fever. (*The Physician and Surgeon.* No. cclxxvi.)

Poverty of many of the patients is the chief obstacle to the enforcement of sanitary regulations in the case of scarlet fever. There are poor facilities for disinfection and some individuals pay no heed to the quarantine. The hardship of prosecutions for violations of the law cannot be enforced as long as the sickness lasts. If a sanitary policeman could be stationed at every infected tenement, the problem would be largely solved. The long period of quarantine necessary in scarlatina results in pressure upon the physician to suppress the notification, and many members of the profession are weakly pliable to this influence. The physician might be allowed to exercise some discrimination, shortening the quarantine in very mild cases. There is no doubt that now and then a patient loses the power of spreading the disease as early as the twenty-first day.

In fatal cases the task of the sanitary officers becomes doubly hard, as some of the family insist on attending the funeral. Permission may sometimes be given if thorough fumigation can be carried out.

While many cities have some hospital accommodation for scarlet fever cases, little can be done with children who have been exposed yet exhibit no evidence of the disease. In theory they should be quarantined for two weeks, but the most that can be done is to disinfect their homes and belongings. The health officers should make every effort to trace the source of the infection in these cases, and especially in regard to the milk supply.

Wright, Frank W.: The Influence of School Life Over Health. (*Boston Medical and Surgical Journal.* Vol. cxlvii., No. 13.)

School sessions should not extend over more than three hours, including a short recess, so that the scholars' meals shall not come too far apart. Too long an interval between the morning and noon meals makes necessary a luncheon, which is eaten cold and consists perhaps only of sweets or nuts. Exercise should not be taken during the forenoon intermission, as the scholar often becomes overheated and has to cool off in his wet clothing. It is better to have recreation come outside of

school hours entirely. The author believes that the evils just mentioned often lead up to chronic digestive disturbance and even phthisis.

Every case of tonsillitis should be regarded as contagious, not only *per se*, but because it often masks diphtheria.

Some teachers do not yet understand that measles and whooping cough are dangerous diseases and are responsible for many deaths.

New Haven, the author's city, has made valuable contributions toward the warfare against contagion. It possesses a sanitary drinking fountain, at which any number of people may drink in succession without exposing themselves to opportunities for catching disease.

Alexander, William: *The Education of Epileptics.* (*The Lancet.* No. 4099.)

The young epileptic formerly received no education, as study was supposed to be a source of irritation. This and his relations with the community by reason of his infirmity allowed him to grow up untaught and without self-control. The effects of the disease upon the mind must not of course be left out of consideration.

These children are now re-educated in certain institutions (Mayhull, Chalfont, etc.), the subjects taught being reading, writing, arithmetic, wood-carving, joinery, etc. Education of this sort is believed to tend toward the recovery of the patient.

Much friction arises between the educational department and the medical staff. The former tend to coddle the patients and favor "family life." Thus it is meant to keep the epileptic from ascending and descending stairs, while a "family" means at least fifteen boys or girls in one cottage. Much more self-reliance is secured by allowing the patients to live like other individuals.

Coleman, W.: *Adrenal Substance in the Intestinal Hemorrhage of Typhoid Fever.* (*Medical News.* No. 1524. 1902.)

In 5 adult cases of typhoid fever with severe intestinal hemorrhages, adrenal substance was given in fifteen grain doses repeated as often as necessary. Four cases recovered, and one died of toxemia and exhaustion, not of hemorrhage, as the autopsy showed. Even very large doses may be administered

without deleterious effects. The powder may be placed on the tongue and swallowed with a little water, or it may be given suspended in water or milk. When nausea follows the administration by the mouth, ten grains may be given per rectum and repeated every hour or two, if the diarrhea is not too frequent. If neither the stomach nor the rectum will tolerate the drug, Schaffer's suggestion of an intravenous injection may be tried, only two or three grains being given.

In a case of purpura hemorrhagica with severe hemorrhages from the nose, gums and bowels, and extensive cutaneous extravasations, the adrenal was given in conjunction with calcium chlorid. The hemorrhages ceased on the fifth day.

Stelwagon, H. W.: Treatment of Ringworm of the Scalp in Institutions. (*The Journal of the American Medical Association.* Vol. xxxvii., No. 21.)

The hair of the scalp should be clipped very short, and in obstinate cases the latter may be shaved every five or six days. To prevent the spread of the disease to other parts of the scalp and to other children, the head should be washed daily or every second day with warm water and medicated green soap (sulph. precipitat., 3 i.; naphthol, gr., xxx.; saponis viridis, 5 i.). As the latter has an inhibitory or destructive influence on the fungus, it should be left on for five or ten minutes, rinsed off, the parts dried, and a general remedy applied (sulph. precip., 3 i., naphthol, gr. xxx., petrolati., 5 i.; or, acid carbol., 3 ii., resorcin, 3 i., solut. acidi. boric. saturat., Oi.).

As depilation becomes almost impossible if the disease is very extensive or the patient very young, a depilatory powder consisting of barii sulph., 3 iii., zinci oxidi and amyli pulv. as 3 iiif., is recommended. It is applied as a paste made with water, remaining on for three to fifteen minutes every five or ten days. Ordinarily, the best application for the areas in young patients and in recent areas is iodin tincture, the value of which is much underrated (hydrarg. iod. rubri., gr. i.-iii., tr. iod., i. 3). It is applied twice daily until the parts become somewhat tender or till the film cracks or begins to loosen. The mild salve is then applied and the film removed as soon as it becomes detachable. This is continued until the new hairs show no fungus, and then the patient must be kept under observation for several weeks.

In hospital cases chrysarobin is by far the most valuable application, but must be used with care in patients under three years old. It is best applied as a saturated chloroform solution, and is covered with collodion. After four or five days the film becomes detachable, and a mild ointment may be used if the irritation is great. Repetition may be necessary, as in the iodin treatment.

If these several methods fail, croton oil may be used; but never in young children. The depilatory may be omitted. The

croton oil is diluted with almond oil at first, but in most cases it is required pure. It is to be applied two or three times daily for two to six days, and then boric acid ointment is used until the inflammation subsides. The method needs repetition only if positive signs of the disease appear on the new growing hairs.

In disseminated ring-worm of the scalp the disease should be reduced in extent before croton oil is used for the final cure. It should never be applied to an area more than two inches in diameter, at the very most.

These several plans can also be used with advantage in private practice and with intelligent dispensary cases, excepting the croton oil applications in the latter class. This must always be used with caution and its action inspected daily.

Fischer, Louis: General Treatment of Measles. (*Medical Record.* No. 1640.)

The author divides the treatment into hygienic, medicinal and dietetic. The room should be kept at a temperature of 70° F. The eyes should be protected from the light. All discharges from the nose, eyes and ears should be disinfected by a solution of bichlorid of mercury, one to two thousand. Boric acid and permanganate of potash solutions may be used for the mouth.

In the medicinal treatment tincture of aconite and spirit of mindererus are recommended for fever, but with weak children care must be exercised in the use of the aconite. Bromid of sodium is useful in nervous symptoms. Care must be taken that purgatives are not irritating. Phosphate of soda and citrate of magnesia are serviceable. Calomel in 1-10 gr. doses is sometimes indicated. Water should be given liberally. Expectorants may be required when the cough is troublesome and there is free secretion of mucus. For young children an emetic will be needed and sulphate of copper in half grain doses is the best.

Heroin has not been found satisfactory, but codein with or without steam will relieve an irritating cough.

For the complication of pneumonia hyperpyrexia should be treated by tepid sponging and the tepid pack.

When diphtheria complicates measles antitoxin should be used. With stenosis of the larynx steam inhalations and emetics will be found useful as intubation does not save life as in other forms of obstruction. Antitoxin for an immunizing agent is regarded as too radical in ordinary cases of measles, but it should be used when there are typical symptoms of diphtheria.

The digestive organs are not to be overtaxed. For nursing babies breast milk is the only food, but the intervals between nursing should be prolonged if the stomach is irritable. In older children buttermilk is a good substitute for plain milk. Concentrated food such as a small quantity of cream or butter is often better than a large bulk of milk.

This has been abundantly proven by clinical observation, post mortem findings and bacteriological examinations.

TREATMENT. Realizing that we have an infection to deal with, a poisoned child to treat, the way is clear. We must remove as much of the intestinal contents as is possible by the use of active laxatives; for this purpose every case whether mild or severe should be given either castor oil or calomel as soon as it comes under observation. Castor oil is my preference, and for a child eighteen months of age two teaspoonfuls should be given. If there is vomiting one grain of calomel in $1/20$ to $1/10$ gr., doses should be given every fifteen minutes. Indications for repeating the castor oil or calomel are infrequent stools and high temperature.

It is among children under two years of age that we see by far our greatest number of cases of diarrhea. The diet of children at this period of life is largely milk; breast milk, condensed milk, raw milk, sterilized milk and grocery milk. Regardless of the source of the milk or its treatment, it must be stopped at once, for the reason that it supplies a most favorable putrefactive medium for the growth of pathogenic bacteria to which the illness is due. It does not help one particle in a severe case to reduce the strength of the milk mixture. Neither has pasteurization nor sterilization the slightest beneficial effect. In fact, heating increases the danger. The breast cases are infrequent and not as a rule severe and an absence from nursing from twenty-four to forty-eight hours is all that is ordinarily required. The mother is instructed to relieve the breast with a borrowed baby or a breast pump at the regular nursing intervals. Cow's milk may have to be discontinued from two to three days to two to three weeks. In exceptional instances for months—my longest case on a non-milk diet was five months, as repeated attempts at cow's milk feeding brought on a return of the diarrhea.

A substitute diet is, of course, to be selected. A carbohydrate substitute has given me the best results. It furnishes a fermentative instead of a putrefactive medium in the intestine in which bacteria do not so readily thrive.

For a child one year old one tablespoonful of Robinson's barley flour or an equal quantity of whole rice is required for a pint of water. The barley flour should be boiled one half hour, the rice three hours. For older children, when the cereal must

be continued for a considerable period of time, it may be made two or three times this strength and dextrinized.

Children soon tire of any one milk substitute if it is used as the only article of diet. I find it advisable, for this reason, to change the taste of the carbohydrate substitute by the use of a small quantity of chicken, mutton or beef broth, and give one or two ounces of the broth to five or six ounces of gruel well salted. Occasionally a teaspoonful of beef juice may be added to the gruel. Both the beef juice and the broths must be used sparingly, with a view only of making the cereal more palatable, as with many children broths and beef juice have a decidedly laxative effect. I have repeatedly seen cases of diarrhea recover upon discontinuing the broth and beef juice diet when they have been given exclusively in considerable quantity.

The free use of brandy and whiskey as practised by many is, to my mind, a mistake. They have a tendency to destroy what digestive powers the child has remaining and help to produce renal complications, which is always a possibility in severe cases of summer diarrhea.

Egg albumen water I have used largely, and have practically discontinued its use as a milk substitute. Many children fail to digest albumen water, and, as it passes into the intestine, it will do as much damage as milk. The children who were fed on egg albumen water ran a high temperature, showed greater systemic poisoning, and, if they recovered, required more time to bring it about than those fed on the carbohydrates.

These clinical observations are well explained by Robert Hutchinson in his work on "*Food and Principles of Dietetics*," under the heading "*What Nutritive Constituents Should the Diet of Fever Chiefly Contain?*" Fever is usually present in summer diarrhea, often of a very high degree. Hutchinson says: "A study of the metabolic changes in fever may be expected to afford us some light here. Extensive investigations into these changes in recent years have shown us that the leading characteristics of the metabolism of fever is a great increase in the destruction of nitrogen-containing tissues, while the mainly carbonaceous components of the body, such as fat, are affected in a much smaller degree. The reason for the increased destruction of nitrogenous tissues by fever appears to be two-fold. Simple inanition due to the fact that less fat is reaching the tissues than is required to meet their output of heat

and to the fact that the toxins which produce fever exert a specially destructive influence on the proteid constituents of the body. This being so, it seems natural to suppose that the chief indication in fever must be to supply a large proportion of proteid in the diet. A little observation, however, has shown that it is impossible to bring about a condition of nitrogenous equilibrium in acute fevers in the use of any feasible quantity of proteid. Practically, therefore, the administration of proteid in the diet fails to achieve the desired result. It tends to flood the circulation with the products of nitrogen, already too abundantly present, thus increasing the strain thrown upon the kidneys, at the same time, in all probability, tending to bring about a condition of toxemia to which some of the symptoms of fever are no doubt due.

"We shall better attain our object of limited proteid destruction, otherwise loss in weight, by seeing that the proteid spares are abundantly represented in the diet rather than by devoting too much attention to the proteids themselves. Now the proteid spares, as we have seen, are in the order of their importance—gelatin, carbohydrates and fats. The use of the first of these is restricted by the fact that the end products of its destruction are so similar to those of proteids that they may be expected to produce the same results as those of proteid in the circulation. The employment of the last is rendered impracticable by the insufferable repugnance which fever patients exhibit to fatty foods. We, therefore, arrive at the conclusion that the diet of fever patients should contain a liberal supply of carbohydrates." The by-products of carbohydrates are thrown off through the lungs as carbon dioxid, thus by their use we sustain the body and rest of the kidneys. The by-products of the proteid metabolism, as previously mentioned, pass off in the urine.

The substitute carbohydrate diet is allowed to be given at two-hour intervals, if the child will take and retain it in such quantity as he was accustomed to take of milk in health. Boiled water is given at any time.

The mother is told to keep the patient in the largest room in the house or apartment. If there is fever, she is instructed to give cold water spongings for fifteen minutes several times a day. The milk diet is not to be resumed until the temperature falls and the stools approximate the normal.

How is milk to be resumed? It must be given gradually at the onset. I begin by using from one to four drachms with each feeding of the barley water, making a slight increase every day or every other day if the condition of the stools allows. The cereal gruel used as a diluent does not permit of a larger amount of milk being given at the commencement of the milk feeding, neither does its use permit of a more rapid increase in the milk strength than if plain water is used. I have demonstrated this in a great many cases.

Drugs.—Two have already been mentioned, calomel and castor oil. With milk continued all drugs are useless in a severe case. After an extensive use of many drugs that have been advocated from time to time as being of value in summer diarrhea one stands out as of signal service in the treatment of this affection. I refer to bismuth subnitrate, which when given in large doses has seemed to me to give the best results. I prescribe it in from ten to twenty grain doses every hour or every two hours; in order to be of service the sulphide of bismuth must be formed in the intestine producing black stools. When black stools do not result no beneficial effects will follow the use of the drug. In such cases I supply the sulphur in the use of lac sulphur in one grain doses.

Opium is also of service but it must be used with caution. I employ it when the stools are frequent eight or more in twenty-four hours and when the stools are large and watery. Opium should never be given when there are but four or five medium sized passages in twenty-four hours. This amount is required to maintain drainage. When using it, if the number of stools is reduced to this number it should be discontinued. If opium is used injudiciously the cessation of the stools will often be followed by rise in temperature, prostration and other evidences of systemic poisoning due to the retention of the intestinal contents which should be removed.

I have a few cases every year in which the temperature runs high, the child is prostrated, with infrequent and often foul stools. In these neither bismuth nor opium should be given. Laxatives may be required every day or two with irrigations to maintain the drainage. If opium is to be given I prefer Dover's powder, $\frac{1}{4}$ to $\frac{1}{2}$ grain, every two or three hours for a child one year of age.

If a heart stimulant is necessary strychnin and strophanthus are ordinarily employed.

Irrigation of the Colon.—This measure is of much service in the cases in which the stools are infrequent and contain much mucus and blood. For the very active cases, those having many passages daily, irrigation does little but disturb the child and increase the irritability of the lower bowel. It is rarely advisable to irrigate a colon oftener than twice in twenty-four hours. Normal salt solution is ordinarily used and for the operation a fountain syringe and a small rectal tube are required. Of late I have used the rectal tube almost entirely for the reason that it is stiffer, does not bend so readily and is easier to introduce into the descending colon. The small soft flexible catheters are sometimes hard to introduce, they are apt to double on themselves and the water escapes an inch or two within the rectum. Unless there is a great deal of distension a tube can readily be felt in the colon through the abdominal wall. The tube should be introduced at least nine inches which will carry it past the sigmoid flexure and then be in a position to flush the colon. The bag should not be held higher than three feet above the child's abdomen. From one to two quarts of the solution are ordinarily employed. In the average case it is used lukewarm. When the patient's temperature is high 104° to 106° , an irrigation of salt solution at 70° will aid as an antipyretic, reducing the temperature two to three degrees. In the cases with extreme prostration and low temperature, cases of the algid type, an irrigation of salt solution at 110° acts as a decided stimulant. Not the least of the beneficial effects of the saline irrigation depends upon the absorption of a certain amount of the solution from the intestine supplying fluid which many of these cases badly need, particularly if there has been considerable vomiting, and large watery stools.

In conclusion, if we are to save lives during the summer we must realize that any gastrointestinal derangement in a young child during the hot months is dangerous and must be taken in hand and treated vigorously at once. Mothers must be instructed to stop milk and give a dessert spoonful of castor oil with the first suggestion of diarrhea.

When the necessity for discontinuing the milk until the child is well is generally appreciated and practised—then and not until then will the large infant mortality from summer diarrhea be materially reduced.

A PLEA FOR THE USE OF O'DWYER'S INTUBATION INSTRUMENTS.

BY M. NICOLL, JR., M.D.,

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With the general use of antitoxin and its early administration in large doses in every case in which laryngeal diphtheria is suspected, the operation of intubation is much less often necessary than in preantitoxin days, when but a small number of these cases recovered without operative interference, while today only about one half require it.

Again, in the cases which do require operation, even though antitoxin has been given, the length of time during which a tube need be continuously worn has been considerably shortened and reintubation is less often necessary.

An important exception is, however, to be noted in the case of children under two years of age, in whom the tube is, as a rule, required more or less constantly for a period of two weeks or even longer. Further the effect of antitoxin on the extent of the membrane is very marked. Before the use of serum it was not unusual to find at autopsy membrane extending from the nose to the finer bronchi; today such a membrane is rarely seen, and, not infrequently, no trace of one is found at autopsy in cases which have required intubation.

To these results of serotherapy may logically be attributed the present tendency to dispense with anatomically perfect tubes. The reasons for this are: First, because physicians are unwilling to pay the larger price at which these tubes are sold, when the opportunities for their employment have become so much less frequent. Second, on account of the shorter time for which a tube is required to be worn, almost any instrument, however imperfectly adapted to the anatomy of the larynx, will, in a certain percentage of the cases, allow the patient to breathe while the antitoxin is producing its effect on the disease. A third and more important factor antagonistic to the

use of O'Dwyer's tubes, and which has been operative from the beginning of intubation, is the universal desire on the part of many physicians to modify a successful invention for one purpose or another, often, it is to be feared, in order to achieve a reflected glory. Certain instrument makers have added to the number of these instruments until today the number of so-called modifications of O'Dwyer's tubes, both here and abroad, is quite impossible of computation. The operation of intubation is not a difficult one but requires for its proper performance a thorough course of training, on the cadaver. It is to the lack of training, the use of badly constructed tubes and maladroitness on the part of some physicians that we must ascribe those modifications which have been undertaken in good faith and with a real desire to overcome what the modifier supposed to be faults in O'Dwyer's instruments.

I have yet to find any American pediatricians (and to them and not to laryngologists, must we turn for testimony) with extensive experience with the operation who adduce any good reason for preferring "modified" tubes to those of O'Dwyer.

Eight years ago, Dr. W. P. Northrup in an address delivered before the British Medical Association said: "Properly constructed tubes are difficult to describe, more difficult to secure from a maker even if a most faithful and conscientious servant. But one maker in the world has succeeded in making tubes that embody all the ideas of the inventor. He alone has been willing to try over and over to make O'Dwyer's tubes. All others have felt the quiet self-conceit that the inventor *thought* he knew what he wanted but in the maker's mind he did not, and would get over it sooner or later."—(*Journal of Laryngology, Rhinology and Otology*, London, October, 1894.) This statement, so far as I know, is as true today as when it was made. It is, perhaps, unfortunate for ethical reasons that in advocating the use of O'Dwyer's tubes, I shall of necessity be compelled to praise those of a particular maker who, however, stands in a peculiar relation to the introduction of intubation. He may be said to have been the skilled hand guided by the brain of O'Dwyer in carrying out his ideas. He still remains true to his belief in the originator of intubation and has thus far steadily refused to manufacture so-called "modified" instruments. Believing as I do that O'Dwyer's instruments have not been improved upon, and that they fulfill every purpose for which they were intended,

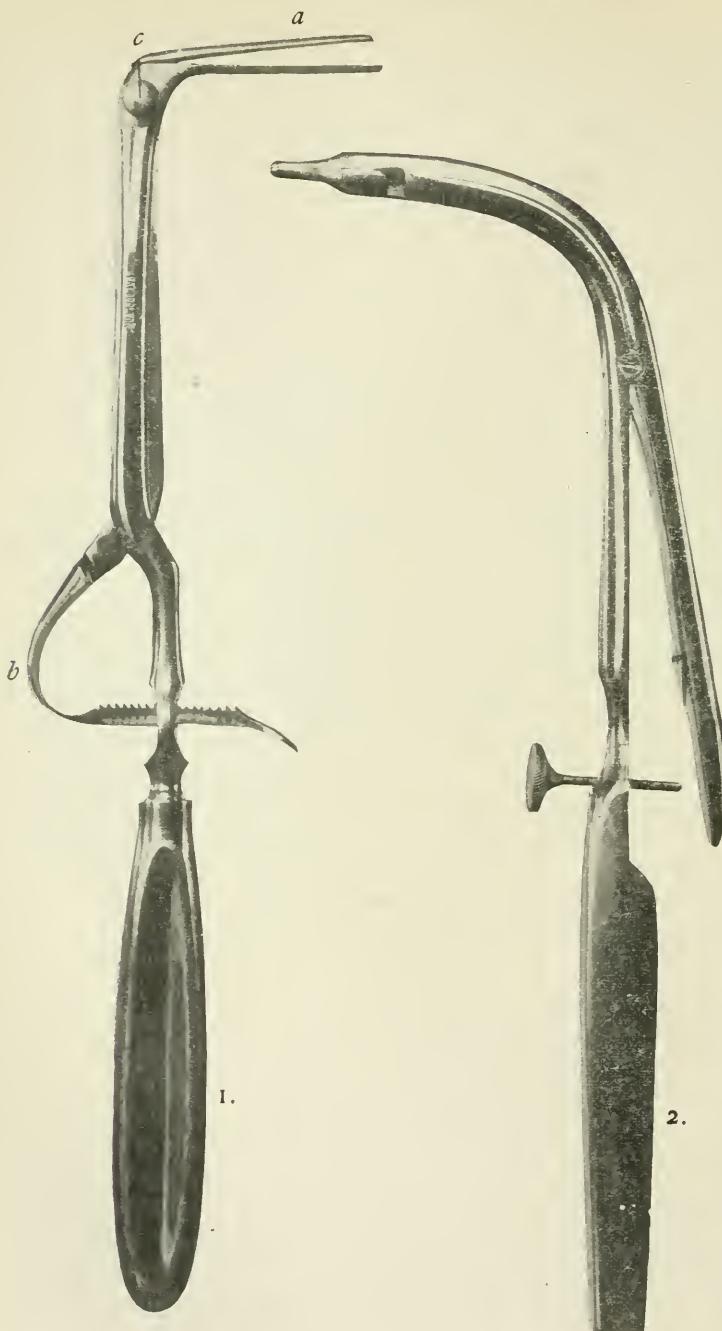


Fig. 1. { 1. Combined Introducer and Extractor (beaks partly opened).
2. O'Dwyer's Extractor.

in the most perfect manner, I am compelled to bestow discriminating praise upon the maker who produces them most faithfully.

It will be a matter of surprise to many that O'Dwyer's tubes are being slowly but surely driven out of the market. It is not a matter of sentiment which leads me to present the following facts, but because I believe that a decided backward step is being taken in this branch of pediatric practice and a wrong is being done to helpless children through the ignorance of physicians and the indifference of manufacturers.

It would take too much space to describe the various weird intubation instruments on the foreign and domestic market. I shall confine myself therefore to the description of one variety, (first), because it has been recommended by certain members of the medical profession, (second), because it is the greatest rival of O'Dwyer's tubes in this country, and (third) because it embodies in compact form every vice of construction which the inventor of intubation strove so earnestly and successfully to overcome.

The instruments to which I refer are described and recommended in Prof. Kyle's text book of diseases of the nose and throat (Saunders & Co., 1900) and pictured under the name of "Thorner's Improved O'Dwyer's Set." The combined extractor and introducer (Fig. I.) "has, at its extremity, two serrated beaks about two inches long (a) they are opened by pressure with the thumb on the upper portion of the lever (b) and are automatically held open by a ratched arrangement, while pressure with the index finger upon the lower end (b) of this ratched bar relieves it and closes the beaks. By firm pressure, the beaks hold the tubes immovably so that it cannot slip off nor turn during the attempt at introduction or extraction." (Inventor's description). The instrument is made of two parts which may be separated by means of the thumb screw (c).

The tubes are stated by the inventor to be *exact reproductions of the tubes of O'Dwyer* except as regards the upper opening in the modified tubes which is funnel-shaped and the lower extremity which is cut off at an angle of about 45 degrees from right to left. The advantages claimed for these instruments are (1) that the funnel-shaped opening permits the extractor to slip more readily into the tube; (2) by cutting off the lower end of the tube its passage between the vocal cords is facilitated; (3)

by doing away with the obturator the operation is simplified, injury to the tissues is prevented by the bulb of the obturator and air is admitted to the lungs along the side and between the beaks of the combined introducer and the extractor, thus avoiding the necessity for hurrying the operation of introduction or extraction.

In criticising these tubes I shall take the smallest of the series and compare it with an O'Dwyer tube for a similar age for the reason that while what I shall have to say of the smallest tube applies also to the larger ones, I find in the former the greatest departure from anatomical standards. As I have already pointed out it is in children under two years of age that prolonged intubation is still necessary even with sufficient doses of antitoxin: these children, therefore, are the chief sufferers from anatomically imperfect tubes. Furthermore, it is in very young children that the greatest difficulty is experienced in intubation. It is to be presumed that the tubes are manufactured with the authorization of the inventor so that I shall be guilty of no injustice if I take them as I find them.

To those who are not familiar with the earlier efforts of Dr. O'Dwyer to render intubation a practical operation it should be stated that little or no real progress was made by the inventor until he began an exhaustive study of the upper air passages of the child by dissections, plaster casts and measurements together with observation of the clinical symptoms and post mortem effects of wearing tubes during their progressive development. Finally, when the tubes were given to the medical profession, every line, curve and angle had its *raison d'être*. The inventor of the tubes that are compared with O'Dwyer's states that they are in all respects, save in the modifications mentioned, exact reproductions of O'Dwyer's tubes. Notwithstanding this statement I am able to find the following differences: The calibre of the modified tube is at least one quarter greater than that of O'Dwyer's and this increase of calibre has been obtained by increasing the thickness of the neck and retaining swell (see Fig. II.) I need not go into the detailed argument submitted by Dr. O'Dwyer to prove that the calibre of his tubes, seemingly *a priori* so insufficient for purposes of respiration and expectoration of thickened mucus, was all that is essential. Every one familiar with the appearance of an intubated child is aware that the breathing carried on through a tube of such a calibre is quite

as quiet and efficient as physiological respiration. Dr. O'Dwyer furthermore pointed out that in an intubated case, in which the physiological closing of the vocal cords and consequent compression of air prior to an attack of coughing was necessarily absent, the tube of smaller calibre to a certain extent made up for

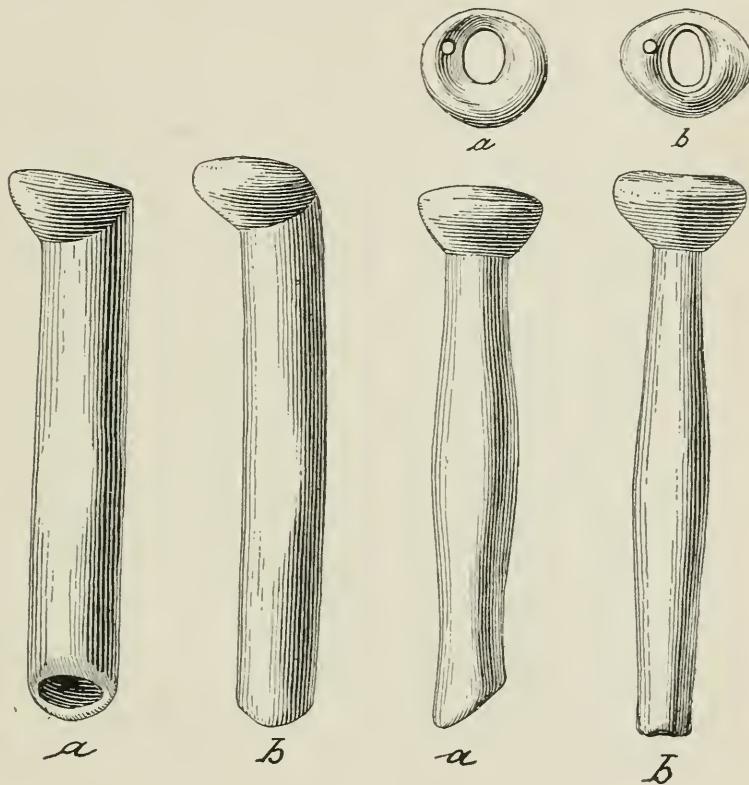


Fig. II.—TWICE NATURAL SIZE OF ONE YEAR TUBE.

a. Modified Tube. *b.* O'Dwyer's Tube.

NOTE:—The view from above does not show the true calibre in the case of O'Dwyer's tube, in which the lumen narrows down at the level of the neck. The calibre of the modified tube is correctly represented by the drawing.

this defect and that such a tube was more readily cleared of obstructing mucus than one of larger calibre. To quote: "While the artificial opening must be large enough for the perfect performance of the respiratory function the power to expectorate is still further diminished and in exact proportion to its increase beyond this limit."—(*Trans. Phil. Co. Med. Soc.*, Vol. II., 1888).

It may be conceded, however, that a moderate increase in the calibre of a tube is, *per se*, of little moment, provided that such an increase can be obtained without disturbing the relations of the tube to the structure of the larynx. This, Dr. O'Dwyer claimed, was not practical and thus we find in the modified tubes under discussion that the increase in calibre has of necessity led to a proportionate increase in the thickness of the neck and retaining swell.

In O'Dwyer's tubes the proper thickness of these parts was arrived at after a long process of experimentation which served to develop the fact that the neck and retaining swell should be large enough to allow the tube to be retained under all ordinary circumstances when its calibre is free, and small enough to avoid pressure and consequent ulceration by the neck of the tube on the vocal cords and by the retaining swell on the cricoid division, the narrowest part, of the larynx and at the same time allow of ready expulsion when the tube is blocked.

Experimenting with the modified tubes on the cadaver I find that they have to be pushed through the cricoid constriction with sufficient force to make it highly probable that no amount of coughing would dislodge them under any circumstances and this without taking into account the grip of the vocal cords which would, undoubtedly, come into play in the living subject and be increased in exact proportion to the increased thickness of the neck of these tubes over that of O'Dwyer's. I find, furthermore, that much more force is needed in extracting them even in the cadaver and this again without the grip of the living vocal cords. The tubes as a whole are carelessly made. Note for example the different convexity of the retaining swell of the two sides of the tube shown in the picture. This is an exact drawing from the original tube and I find this fault running through the entire set. In some the long side shows the greater convexity and in others the short side; a matter of small importance, perhaps, except as showing the attitude of the maker's mind towards the importance of constructive details. I shall not dwell upon the fact that these tubes are made of metal and the modern O'Dwyer tube of hard rubber for the reason that while the latter substance has certain advantages they are of minor importance as compared to the other details of construction and again, because I am informed that the best method of constructing rubber tubes is a secret

process of one maker, which however by no means precludes the possibility of making perfectly satisfactory tubes of this substance by other makers.

I shall presently point out the dangers of increasing the retaining swell beyond anatomical limits but before doing so I shall note the specified modifications in the tubes already al-

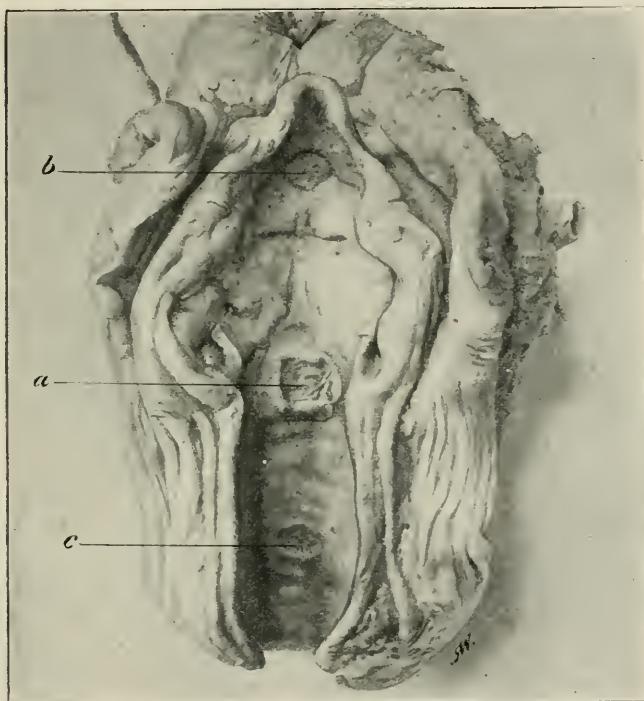


Fig. III.—LARYNX OF CHILD TWO AND A HALF YEARS OLD.

Showing ulceration caused by too large a tube. The ulceration at *a* involves the whole thickness of the cartilage. Those at *b* and *c* are mere abrasions.

luded to. In regard to the head of the modified tube, the inventor states that the only departure from that of O'Dwyer's tube lies in the fact that the upper opening of the former is funnel shaped to allow of easier entrance of the extractor. This same funneling is also seen, to a limited extent, in the smallest of O'Dwyer's tubes in contrast to the larger sizes which present a smooth

convex superior surface, but with this important difference that the anterior part of the head is not thus bevelled but presents a broad smooth surface instead of a narrow rim to the base of the epiglottis when the tube is in position. Furthermore, the funneling only involves the parts immediately adjacent to the upper lumen of the tube and not the whole upper surface of the head as in the modified tubes. Instead of the backward cant of the head seen in O'Dwyer's tube and the rounded convex surface at the anterior point of junction of the head and neck there is a sharp angle.

Dr. O'Dwyer's earlier and experimental tubes caused ulceration at three points, the first at the base of the epiglottis, which to a great extent was avoided by giving a backward cant to the head and leaving the metal thick at the anterior part. From the description of the head of these modified tubes just given, it can be readily seen that they are in every respect adapted to cause an ulceration at this point, if worn for any length of time. The second point of ulceration noted by O'Dwyer was found within the cricoid division of the larynx and was caused by the use of too large a tube for the child's age or tubes with too large a retaining swell.

Figure III., is a drawing of a larynx and trachea of a child two years and a half of age, who died on May 5th of the present year at the New York Foundling Hospital of bronchopneumonia following diphtheria of the larynx for which she had been intubated sixteen times during a period of one month. It was found that the two year old tube (the proper size for a child of her age) was, after a few days, very readily expelled and apnea came on so suddenly that the house physician thought it wise to insert a three year old tube instead. At the autopsy, I found the interior of the larynx apparently about to undergo complete destruction. The mucous membrane was greenish white in color, the cartilages thickened and the vocal cords destroyed. An ulcer involving the whole thickness of the cartilage was found below the cricoid ring at the point where the greatest convexity of the retaining swell of the three year old tube rested against the anterior wall. Notwithstanding the prolonged intubation, but a very small and superficial ulceration occurred at the base of the epiglottis and a similar one of even less extent in the trachea opposite the terminal end of the tube. Here then we find absolute proof of the dangers of too

large a retaining swell in prolonged cases. If the retaining swell of O'Dwyer's tube be anatomically correct then it must be granted that in this respect the modified tubes are not only incorrect but as the facts of the case cited above would suggest, absolutely dangerous to the integrity of the larynx.

The third and least important point of ulceration caused by the earlier tubes was found within the trachea opposite the lower end of the tube. This Dr. O'Dwyer avoided to a great extent by having the end of the tube rounded off and blunt and by giving the tube a slight backward sweep. The modified tube under discussion presents a comparatively sharp tracheal end and is thus perfectly adapted to cause this ulceration. It will be recalled that the reason given by the inventor for cutting off the end of the tube is that it permits of an easier passage between the vocal cords. It is true that the vocal cords may very rarely cause obstruction to the passage of the tube through reflex spasm, and whether the sharpened end of these tubes is better adapted to overcome this unimportant occurrence I am unable to say, but that it passes with the greatest ease into the ventricles of the larynx I have proved to my entire satisfaction. Of three cadavers recently intubated with this tube by the house staff of the Foundling Hospital and myself all showed at autopsy that the ventricles had been entered. In one case in which the tube had met with an obstruction it was left in situ and upon taking out the larynx and trachea it was found to have passed into a ventricle up to the retaining swell. If any force was used beyond what is justifiable with O'Dwyer's tubes, it is to be accounted for by the fact of the greater difficulty in the use of the introducer, a matter to which I shall later refer.

Now while it must be admitted that the ventricles of the larynx may occasionally be entered by O'Dwyer's tube during unskillful attempts at introduction, the blunt end of the tube, perfectly rounded out by the bulb of the obturator, is less apt to cause this accident than the comparatively sharp end of the tubes as modified. The reason given for doing away with the obturator, one for each tube, is that the instruments necessary to intubation are thus reduced in number, an advantage which I shall readily admit provided that the obturator is an unnecessary incumbrance.

It is stated that O'Dwyer's obturator attachment by means

of a screw is faulty. This is undoubtedly true, as the thread soon becomes worn and thus allows the tube and obturator to turn upon the introducer, but this defect has been remedied in the latest instrument in which the obturator fits instead of screws into the introducer and cannot possibly turn when properly adjusted. The absence of the bulb at the lower end of the obturator as a means of rounding out the end of the tube, is not an advantage, as the inventor of the new instrument seems to think, but quite the contrary, and for reasons which I have just pointed out.

The absence of an obturator is further regarded by the inventor as an advantage, in that air gains access to the lungs of the child "between and alongside the beaks of the introducer." That an insignificant quantity of air may be thus inspired is true, but that the quantity admitted can be sufficient to prevent asphyxia is improbable. It is safe to state that no child has died on account of the apnea occurring between the moment of the actual entrance of the tube into the larynx and the removal of the obturator, provided, of course, that the operation was skillfully performed. Finally the obturator is of decided importance in keeping the tube clear of mucus and loose membrane while it is being introduced.

With the actual use of these instruments on the cadaver, I find that intubation and extubation present certain difficulties not met with in using the instruments of O'Dwyer. First: Force is, as I have already mentioned, essential in order to push the large retaining swell through the cricoid constriction. As Dr. Northrup has for many years insisted, the only condition in which force is justified in intubation for acute laryngeal stenosis, is that known as sub-glottic edema. At all other times the introducer should be held lightly between the thumb and fingers. Second: In intubating with these instruments the shoulder of the combined instruments impinges against the hard palate. This is especially marked on attempting to withdraw the beak from the tube, and is due to the fact that the distance between the end of the tube when adjusted on the beaks and the shoulder of the instrument is greater than that between the end of O'Dwyer's tube for the same age and the shoulder of his introducer, and also because the upper section of O'Dwyer's hinged obturator is only about one half the length of these solid beaks, so that in removing the obturator from a tube placed in the larynx,

after the upper segment has passed out of the tube, the terminal segment will readily follow by a rotation of the handle of the introducer on a transverse axis downward towards the patient's chest, whereas the entire beak of the modified instruments must be carried upward before it can be removed from the mouth. The younger the child, the more marked will be this defect. The beaks of the new instruments, unlike the obturator, being the same, of course, for all ages.

One would suppose on looking at the combined instrument as well as the head of these modified tubes, that the author's

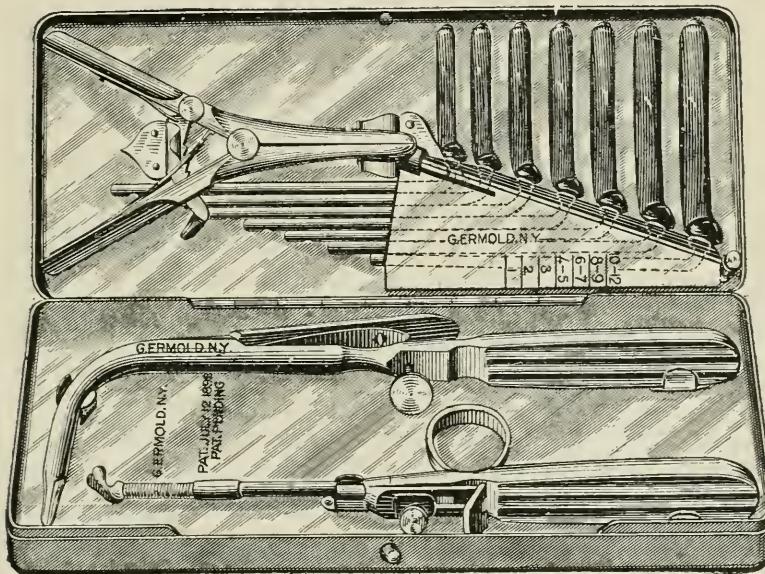


Fig. IV.—O'DWYER'S COMPLETE INTUBATION SET.

claim of the easier entrance of the beaks into the tube was well founded. As a matter of fact it is not, and those of us who have tested this instrument as an extractor find that the operation is much less easily performed than with O'Dwyer's instruments. The beaks do *not* slip readily into the lumen and if not pushed well down spring out of the tube, and the shoulder of the extractor standing far above the head of the tube impinges with additional force against the hard palate as the tube is being removed. By referring to Fig. I., the long curve of O'Dwyer's extractor will be noted, contrasting with the sharp angle of the

combined instrument. O'Dwyer's extractor grasps the tube more readily than the other and is then withdrawn without difficulty even from the mouths of the smallest children.

It was only after repeated efforts in the experiments above referred to that we were able to extract a tube from an infant by means of the new instrument.

Finally, I find that the screw (c) of the combined instrument tends to interfere with the mouth gag, even with the special gag furnished with the instrument set, and that the ratchet tends by prolonged use to slip and release the tube automatically.

I believe we may draw the following conclusions :

1. The O'Dwyer's tubes when carefully made conform very exactly to the anatomy of the child's larynx. Any departure from this model is therefore an error of construction.

2. The modified tubes here described, apart from the specified modifications, differ in several constructive details from those of O'Dwyer.

3. The modifications are of no advantage. The tubes as modified would very probably cause ulcerations by prolonged use.

4. The omission of the obturator, except in so far as it simplifies the instruments, is not an improvement.

5. The operations of intubation and extubation are rendered more difficult especially in very young children by the use of these instruments.

The sole advantage that these tubes possess is their comparative cheapness, and if that be sufficient reason for their employment, then what I have written has been a waste of time. If, however, by presenting the above facts, I shall call the attention of the medical profession, and indirectly that of instrument makers, to the importance of using properly constructed tubes, my purpose will have been accomplished.

The name of O'Dwyer is writ large in the annals of American medicine, the instruments that bear his name have been the means of saving the lives of countless children, and have prevented horrible death by suffocation in many more. The instruments were perfected at the time of the inventor's death, and until the day when another shall give to the world, not just as good, but better instruments, the American medical profession should be the last to discourage their use. That day has not yet arrived.

A CASE OF DIABETES MELLITUS IN A CHILD FOUR YEARS OLD.*

BY HEINRICH STERN, PH.D., M.D.,
New York.

Dorothy S. came under my observation on March 7, 1902.

FAMILY HISTORY.—She is the first child of a lean and healthy mother and of a father inclining to obesity. The grandmother on the maternal side died at the age of fifty; the grandfather is still alive. The grandparents on the paternal side are also alive. There is no history of lues.

PERSONAL HISTORY.—She was never a strong child. When two years old she had an attack of diphtheria which, according to the parents, had not produced lasting after-effects. In December, 1901, when she was four years and three months old, her baby sister developed diphtheria. At that time she was quite weak, and the parents noticed a remarkable languor and somnolence. The attending physician of the younger child administered to her a prophylactic injection of antitoxin. Within a few hours after the injection she became icteric, and remained so for some weeks. The lassitude had still increased, and she was more or less asleep during the whole twenty-four hours. Pyrexia was not present, and she did not complain of any pain. During the short periods of wakefulness she gave evidence that her intellect had not suffered. However, she was apathetic all the time and did not show any interest in her former toys, etc. Appetite and thirst had become insatiable. Emaciation was progressive, and she became so weak that she needed assistance if she wanted to turn in the bed.

Micturition had become very frequent, especially during the night. The twenty-four hours' urine, on the average, amounted to almost four litres.

During, or soon after subsidence of the icteric condition, the diagnosis of diabetes mellitus was made and various medicinal agents were prescribed. The diet was regulated to some ex-

* A lecture delivered at the New York School of Clinical Medicine, May 2, 1902.

tent, but a rigid antidiabetic regimen was not instituted. Improvement of any of the symptoms had not occurred when she came under my observation.

PHYSICAL EXAMINATION revealed the following: Weight, 12.5 kilograms; appearance, pallid and emaciated; extremities, very thin; muscles, flabby; abdomen, bloated and rather hard; position of abdominal organs, slightly ptotic.

The lymph nodes in both the inguinal regions were infiltrated; the liver was found slightly enlarged and the left lobe to be somewhat hardened, it was sensitive upon pressure; the cardiac action seemed forced and was arrhythmic to some extent; the tension of the right radial artery, ascertained by the sphygmomanometer, amounted to 60, and that of the left radial artery to 65 milligram of mercury. The examination of the other organs gave negative results.

The urine showed the following characteristics: Amount excreted in the past 24 hours, 3250 c.c.; color, greenish-gray; transparency impaired; reaction 0.48° acidity; specific gravity 1030.5 at 15.5°C.; total solids 230.96 grams; salts of hydrochloric acid increased; salts of sulphuric and phosphoric acids greatly augmented; ammonia increased; carbamid 3.1 per cent.=100.75 grams; uric acid normal; xanthin bodies and creatinin about normal; indican traces; mucin normal; serum albumin and other proteid substances absent; fatty matters absent; glucose 2.8 per cent. 91 grams; glycuronic and alkaptionic acids absent; acetone and diacetic acid present in considerable amounts. Microscopically no abnormal substances could be distinguished.

The feces (examined at some later date) contained: Fatty acid crystals; cholesterin and koprosterin; mucin; glucose in small amount (detected by Fehling's and Nylander's tests, confirmed by fermentation). As there was no absolute regulation of the diet no examination for nitrogen was made.

The blood examination showed: Specific gravity 1039; alkalescence (of 100 c.c. blood)=373.1 milligram NaHCO₃; hemoglobin 42 per cent.; number of erythrocytes 2,800,000 in 1 cmm.; of leucocytes 12000 in 1 cmm.; proportion of leucocytes to erythrocytes, 1 to 233; morphologically the blood contained no abnormalities; Bremer's phenomenon present.

The saliva (examined at a later date) exhibited an acid

reaction and contained a small quantity of glucose (Nylander +, phenylhydrazin +.) No glucose could be detected in the tears.

TREATMENT.—A very rigid anti diabetic regimen was instituted. Medicinally, the following was prescribed:

R.
Antipyrini..... 0.15 gram.
Codeinae phosphorici 0.005 gram.
M. ft. pulv. da. tal. dos. L.
Sig. One powder every four hours in water.

Besides this, sodium pyrophosphate in doses of 0.15 gram, dissolved in water, was to be taken three times a day.

Improvement or complete subsidence of the diabetic phenomena ensued at once. The glycosuria diminished materially, although it continues to persist at the present day.

The following table gives the main characteristics of the urine on different occasions since the patient has come under my observation.

Date.	Amount in 24 hrs. c.c.	Spec. Grav.	Total Solids. Grams.	Carbamid, in 24 hrs. % Grams.	Glucose, in 24 hrs. % Grams.	Acetone.	Diacetic Acid.
III. 7th	3250	1030.5	230.96	3.1=100.75	2.8=91	+	+
III. 9th	2050	1032	152.85	3.6=73.8	2.3=47.15	+	+
III. 14th	1940	1029	131.09	3.8=73.72	2.=38.8	+	+
III. 16th	1600	1029.5	109.95	3.8=60.8	2.05=32.8	+	—
III. 22nd	1500	1028	97.86	3.5=52.5	1.95=29.25	+	+
III. 30th	1320	1032.5	99.93	3.7=48.84	2.53=33.4	+	—
IV. 11th	1250	1034	99.	3.8=47.5	2.23=29.13	—	—
IV. 19th	1200	1034	95.06	3.6=43.2	2.=24.	—	—
IV. 28th	1120	1033.5	87.41	3.6=40.32	2.1=23.52	—	—
V. 5th	1200	1032	89.46	3.7=44.4	1.84=22.08	—	—

A perusal of the table shows a (1) progressive decline of diurnal excretion of urine; (2) augmentation of urinary density during the last month; (3) absolute diminution of excreted solids; (4) absolute diminution of urea; (5) absolute diminution of urinary glucose; (6) disappearance of acetone and diacetic acid.

The decline of urinary fluid was continuous. From 3250 c.c., the amount voided during the 24 hours prior to the institu-

tion of a special diet, it decreased to 1200 c.c., the average diurnal quantity for last month. The augmented specific gravity of the urine during the past weeks was due to the gradual diminution of urinary water; however, the total solids became materially diminished. They declined from more than 230 grams to less than 90 grams per day. The percentage of urea excretion increased at once after the antidiabetic regimen was started. This was due to the concentration of the urine and not to hyperingestion of proteids. The absolute diminution of carbamid (from 100 grams to less than half of it during the 24 hours) was very pronounced. Compared with the output of total solids it was excreted in about normal proportions since the end of March. Although the percentage of excreted glucose became not markedly diminished, its absolute output declined progressively and with but one exception also continuously. From 91 grams on March 7th it had declined to 22 grams on May 5th. The continued absence of acetone and diacetic acid tend to demonstrate that an exclusive proteid-fat diet is not the sole producer of these abnormal urinary constituents.

Concurring with the decrease in urinary carbamid and glucose was the increase in body-weight. This amounted to 12.75 kilograms on March 14th; to 13 kilograms a week later; to 13.5 kilograms on March 30th; to 13.75 kilograms on April 19th and to almost 15 kilograms on May 5th.

I believe that, using this case as a test, we can make the following comments:

A.—FREQUENCY OF DIABETES MELLITUS BELOW THE FIFTH YEAR OF LIFE IN NEW YORK CITY.

If the mortality from diabetes mellitus is an indication of the latter's frequency, then it occurs but rarely below the fifth year of life in New York City. From 1889 until 1899 the following deaths from this malady ensued in children under five years of age in New York City:*

Four cases in infants below 1 year of age; at 1 year of age, 1 death; at 2 years, 2 deaths; at 3 years, 2 deaths; at 4 years, 4 deaths. As no deaths from this affection occurred in individuals of less than five years during 1900 and 1901 we have a total

*Heinrich Stern—*Diabetes Mellitus*. The mortality therefrom in the City of New York during the period from 1889 till 1899, from the official records. (Comments, *Four. Am. Med. Ass.*, Jan. 26, 1901).

mortality of 13 for the last 13 years. In case diabetes does not terminate fatally before the fifth year is reached it usually will do so during the following lustrum. As during the period specified about the same number of deaths from diabetes ensued between the fifth and tenth year of life, we may assume that not more than 25 cases of the affection, at the utmost, occurred in children under five years of life in the City of New York during the last 13 years.

B.—DURATION OF DIABETES MELLITUS IN CHILDREN BELOW THE FIFTH YEAR OF LIFE.

The New York records which I have examined do not allude to the duration of the disease below the fifth year of life. Bogoras * gives the following statistics, as regards the duration of the affection in children less than five years old:

Duration of diabetes when death ensued, 1 month in 14 instances; 6 months in 19 instances; 1 year in 3 instances; 2 years in 1 instance; longer duration in 1 instance.

Thus it is seen that in the vast majority of instances the child succumbs to the affection within one year from the onset of the disease. The direct causes of death are coma diabeticum, marasmus, intercurring acute diseases, especially such of the respiratory organs. Phthisis pulmonum, however, is of rare occurrence during the diabetic state of children.

Cessation of the diabetic process and cures of the little patients, however, are recorded. Garnerus † even reports a case of diabetes in an infant which was cured.

C.—THE SEX IN DIABETES OF EARLY CHILDHOOD.

In New York during the last 13 years of the 13 instances of death ensuing from diabetes in children below the fifth year of life, but 3 occurred in females. Of the 11 children afflicted with diabetes who have died between the fifth and tenth year of life during the period 1889-1899, 8 were girls and 3 were boys. These statistics demonstrate that the malady is either of greater frequency in boys than in girls before the fifth year of life, or they show that the disease is more common in the female than in the male sex between the fifth and tenth

* *Zur Kenntnis der Zuckerkrankheit im Kindesalter.* Inaugural Dissertation, Berlin, 1899.

† Garnerus.—*Deutsche med. Wochenschrift*, No. 42, 1884.

year, or, they may indicate that diabetes runs a more rapid and fatal course in boys than in girls during the first 5 years of life.

D.—LATENCY OF DIABETES IN EARLY CHILDHOOD.

Bogoras differentiates between the latent and the acute forms of diabetes in childhood. That is, the disease may start in slowly and after some time only, a pronounced diabetic stadium may ensue. This is certainly often the case in children after the first decenary of life; in very young children as in the one whom I have under observation, the onset is most always decidedly abrupt. Nevertheless we may speak of a latent condition during the course of the affection. The state in which my patient is at the present moment may be truly designated as such. That an acute stage preceded it does by no means exclude that it may not be followed by an acute exacerbation.

The disappearance or improvement of the diabetic phenomena, the regaining of strength and the remarkable increase in body-weight, let it appear that the stage which my patient has arrived at, is really one of latency. Of course, we must discriminate between a latency prior to the outbreak and the one ensuing after establishment of the disease.

E.—THE MODE OF ONSET OF DIABETES IN EARLY CHILDHOOD.

As stated before, the beginning of diabetes in children is very sudden in the great majority of instances. It is frequently ushered in by an acute febrile disease. Its appearance may have been directly preceded by influenza, rubeola, scarlatina, diphtheria, enteric fever, meningitis, gastro-enteritis or by some acute disorder. In the case under observation the mode of onset of the malady is not quite clear. It was stated that the patient was weak and somnolent at the time of the prophylactic injection of antitoxin and that she became icteric soon after the antitoxin administration. The onset of the diabetic state in this particular instance may have occurred; (1) before the injection of antitoxin; or (2) as the result of this injection; or (3) as the consequence of a slight or modified attack of diphtheria; or (4) as the outcome of a diphtheric or other infection of some part of the gastro-intestinal tract which infection may also have given rise to the prevailing icterus; or (5) as the consequence of a specific protoplasmatic anomaly.

In as much as a pancreatic affection often stands at the

foundation of diabetes mellitus we are justified in assuming a diphtheritic or other infection of this organ, in the case before us. The non-occurrence of pyrexia need not necessarily preclude this supposition. While the absence of fatty stools is no positive proof of the non-involvement of the pancreas, the presence of goodly amounts of fatty material in this case, as that of cholesterol and koprosterin for instance, lends color to a pancreatic substratum of the disease.

F.—THE ANTIDIABETIC REGIMEN IN CHILDHOOD.

It is the opinion of some experienced clinicians that a rigid antidiabetic diet should not be insisted upon in children. Of course, interdiction of sweetmeats, cakes and of farinaceous articles of food in general, is not viewed with favor by the youthful patient, yet I have never seen untoward results from the strict adherence to a diet deficient in carbohydrates when such a nutrient was really indicated. The food, certainly, must be tastefully prepared and care should be taken to have it as varied as possible, so as to avoid monotony and consequent loss of relish. In the present instance, the rigid proteid-fat diet is not only well borne but acetone and diacetic acid have disappeared from the urine while adhering to this regimen. This demonstrates that acetone and diacetic acid may also be decomposition products of carbohydrates, or of body albumin.

Painful Abdominal Crises of Infancy ; Their Diagnosis ; Frequency of Intestinal Lithiasis.—Rousseau-Saint-Philippe concludes (*Journal de Médecine de Bordeaux*, December 8, 1901,) that dry colic or painful abdominal crises ought always to attract the attention of the physician. They are of great importance. These colics are often appendicular, and hence the necessity of an immediate diagnosis. Frequently these colics are located in the large intestine itself. In these cases the principal causes are accumulation and obstruction, due very often to intestinal lithiasis. By a wise prophylaxis based on rational hygienic alimentation, it is perfectly possible to avoid infection of the cecum and of the appendix, and consequently render less frequent and less severe the accidents due to this double infection.—*Medical Record.*

Clinical Memorandum.

A CASE OF KERION.

BY EMELYN L. COOLIDGE, M.D.,
Babies' Hospital, New York.

Tinea-kerion, from the Greek *κηρίον*, honey-comb, was first described by Celcus. It is not a very common disease, and Crocker says "Kerion may be defined as a pustular folliculitis excited by the ring-worm fungus. Every follicle in the patch is the seat of a pustule and the acuteness of the inflammation and close aggregation produce a well-depressed and considerably raised red patch covered with very deep red pustules, the whole mass fluctuating and having a superficial resemblance to carbuncle, for which it is often mistaken, but without induration, round or purplish redness. . . . Pressure gives exit to a glairy mucus more or less mixed with pus. . . . In young infants where the hair is fine or scanty and in older children where the hair is thin, there are distinct rings, the disease closely resembling tinea circinata."

Thomas K., aged one year and eight months, was admitted to the Babies' Hospital February 11, 1902. Family history was practically negative.

PERSONAL HISTORY.—The patient had always been a perfectly healthy child up to six months before admission, at which time, the mother said, "boils" appeared on his face, neck and head; those on face and neck soon healed, but the ones on the head persisted for a long time, leaving the present "sore spots," for which the child was admitted to the hospital. The mother was still nursing him, and also gave him light table food.

THE PHYSICAL EXAMINATION showed the patient to be quite a well-nourished child, weighing twenty-three pounds and six ounces, and with no evidences of disease except the lesion on the scalp. At the junction of the occipital bone with the two parietals, and nearly in the median line, there were two bright red, honey-combed, areas, each about the size of a quarter of a dollar; although near together they were quite separate and ring-shaped. These patches were distinctly raised and contained no hair although the rest of the scalp was covered with very fine, rather sparse, brown hair. The affected areas showed marked fluctuation and on pressure a glairy, muco-purulent secretion was expressed. About the middle of the right parietal a

bone there was a similar area, but this was more irregular in outline and contained much less secretion than the other two. The most striking feature about all three areas was the raised and honey-combed appearance.

On February 15th the child was examined by the hospital dermatologist, Dr. Edward B. Bronson, who made the diagnosis of kerion, and ordered nosophen powder to be dusted on the areas, followed by the application of an ointment of nosophen, starch, zinc oxid and vaselin. This treatment was continued until February 18th, when, no improvement having taken place, and the discharge increasing, the head was first washed with peroxid of hydrogen and then the nosophen powder and ointment applied. This treatment was continued for the next ten days with very little, if any, improvement, and still a slight increase of the muco-purulent secretion. On February 24th it was decided to touch the lesions with a 4 per cent. solution of cocain, followed by a 30 per cent. solution of silver nitrate, after which nosophen powder was dusted on. The silver nitrate was used every other day; the intervening day the head was washed with bichlorid of mercury, 1-5000, and dressed with pure balsam of Peru. Four days later the head showed a slight improvement with less secretion and the honey-combed appearance began to disappear.

March 4th. The head seemed a good deal better, balsam of Peru and nosophen powder alone being used regularly, and the silver nitrate being applied occasionally to burn down any superfluous granulation.

March 10th. The area on the right occipital bone is entirely healed, healthy looking scalp, but with no hair on it, being seen.

March 21st. The honey-combed appearance of the two areas on the back of the head has almost disappeared, only one small spot about the size of a pea remaining. The secretion has entirely ceased and also the raised appearance, the rest of the area showing a smooth scalp, a trifle glazed in appearance, and without any hair.

March 26th. Head has entirely healed; dressings discontinued.

A few days after this the mother took the child home, but brought him back to the hospital for inspection about one month later. The head was looking well, but no hair had as yet begun to grow on the affected spots.

ARCHIVES OF PEDIATRICS.

JUNE, 1902.

EDITED BY

WALTER LESTER CARR, A.M., M.D.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

HYPOTHYROIDISM—THE THERAPEUTICS OF THYROID EXTRACT.

The employment of glandular extracts in therapeutics was hailed with so much enthusiasm at their original introduction that it was not difficult to foresee the inevitable disappointment that would follow their extensive use. As the result of this overhope the usual reaction set in, and now the pendulum has swung too far in the other direction, and these remedies are not used as much even as their results would justify. For nearly all therapeutic fads have an element of truth as their source, and always leave a precious grain of progress behind them, if it be but recognized. This is especially true of the use of thyroid extract, and the indications for its administration are becoming

clearer as the result of the patient observation of clinicians in many parts of the world.

Besides the set of affections manifestly connected with myxedema, there is undoubtedly a group of irregular manifestations of disturbances of metabolism associated not with actual cessation of the thyroid function, but with insufficient function, or inhibition of glandular secretion. Attention was recently called by Dr. Meltzer in a paper read before the New York Academy of Medicine (February 6, 1902) to the role that inhibition may play in many glandular functions in the body. In these cases of functionally defective thyroid secretion the use of thyroid extract is especially indicated, though there may be none of the symptoms of actual myxedema that would at once call attention to the need of the system in this regard. These examples of what the French clinicians call *myxedeme fruste*, abortive myxedema or hypothyroidism, are not difficult of recognition if the possibility of their occurrence be kept in mind, though, as Buschau says, the diagnosis is not easy when the disease is imperfectly developed or is associated with a distinct tendency to obesity.

Two forms of functional hypothyroidism have recently been pointed out by American writers, and they bear evident relations to corresponding affections described by Thibierge and Hertaghe in France. Dr. Perry called attention, at the Harvard Medical Society of New York City, to a group of symptoms that he considered due to insufficient thyroid secretion. The patients seen by him suffered from a weak and rapid heart, from persistent headache without discoverable cause, from a tendency to painful joints, and, when women, from menorrhagia. Three of the cases were related as grandmother, daughter and grandchild. It has also been a prominent feature in the French observations of hypothyroidism that family tendency is a great factor. All of Dr. Perry's cases improved under the use of thyroid extract. They showed a tolerance for the substance that in itself is abnormal, and that is the best possible therapeutic test of the cor-

rectness of the diagnosis. As Buschau says, trial treatment with thyroid extract may in certain obscure cases be necessary to clear up the diagnosis.

At the last meeting of the New York State Medical Society Dr. Stern described cases of obesity in children that seem to be due to thyroidic deficiency and that respond positively to the therapeutic test of thyroid administration. In these cases there are usually distinct tendencies to rapid heart action and to dyspnea on exertion for which no cardiac nor pulmonary cause can be found. The dyspnea, tachycardia and obesity in children were noted by Thibierge in his classical monograph on affections of the thyroid some years ago. There is usually present also a marked infantilism, or, at least, a failure to develop normally to the size that might be expected from the family antecedents.

In these cases the use of thyroid extract has proved of decided benefit. We have known for several years that in adolescent obesity the remedy was often of service, and now the indications for its use are becoming clearer. The habitual apathy so characteristic of certain backward children is often to be found in little patients with tendencies to obesity. Not infrequently the two conditions will be found to occur in red-cheeked children, who, as pointed out by French observers, sometimes have a distinct spot of redness on each cheek that would seem to point to full-bloodedness and active circulation. As a matter of fact, however, these children often complain of being cold, and of having tired feelings in their extremities. These symptoms are for French clinicians indications for the use of thyroid extract, and the success of the therapeutic test often justifies their diagnosis. It would seem, then, that there is a distinct field for the use of thyroid extract apart from the serious myxedemic conditions for which it has been so successfully employed.

DR. ABRAHAM JACOBI.

Dr. Abraham Jacobi's name is so closely identified with the teaching and practice of pediatrics in America, that his withdrawal from his professorship in Columbia University marks an epoch in the history of medicine in this country. His career as a teacher of the diseases of children began in 1857, when he assumed the position of Lecturer on Infantile Pathology in the College of Physicians and Surgeons. Three years later he was appointed Professor of Diseases of Children in the New York Medical College, and established a children's clinic there. This was the first time in the United States that a teacher had been appointed for that branch of medicine, exclusively, and it was the beginning of a new order, for the other metropolitan schools soon had similar departments, Dr. Jacobi himself organizing the one at the University of New York in 1865, and that at the College of Physicians and Surgeons in 1870. For thirty-two years the students at the latter school have enjoyed the privilege of listening to his scholarly and masterly lectures and clinical demonstrations. As a further aid to his college work, the Jacobi Ward for Clinical Instruction was opened at Roosevelt Hospital in 1898.

When we consider that Dr. Jacobi has been engaged in teaching the subject of pediatrics for forty-five years, it becomes a matter of congratulation for the future of medicine to contemplate the numbers of practitioners of medicine whom he has influenced and trained to look upon pediatrics, not as a narrow specialty, but as a very necessary and most interesting part of their equipment as general practitioners.

That his fame is world-wide has been abundantly proven on many occasions, not the least of which are the call from the University of Berlin to occupy the chair of pediatrics as Henoch's successor, and the Festschrift tendered him on the seventieth anniversary of his birth by friends and former pupils in many countries.

In order to still further stimulate the interest of the medical

profession in the study of pediatrics, Dr. Jacobi became the principal mover in the founding of the Pediatric Section in the American Medical Association and in the New York Academy of Medicine, and he was the first president of the American Pediatric Society. His writings have kept pace with his teaching; several must be reckoned among the medical classics.

It is his scholarliness, his profound and many-sided learning, his interest in affairs in general, and his courage in upholding his convictions at all times, that make him so impressive, so forceful and so admirable a figure—so strong an influence for good—and so thoroughly worthy an example to his younger colleagues.

The Toilet of the New-Born Infant.—Riva-Rocci (*Gaz. Med. Ital.*, January 30, 1902) recommends the following routine: (1) Insert the little finger in the mouth as far as the larynx and remove any mucus or foreign body there; (2) with 1 in 5,000 solution of perchlorid and a tampon of sterilized wool wipe the outer surface of the eyelids; with a second tampon rapidly moisten the conjunctival sac with a few drops of this solution, and carefully dry the external parts; as a rule no reaction occurs beyond a slight redness for a few hours; (3) with a third tampon cleanse the anterior nares; gonococcus infection here is not uncommon and is very intractable; a nasal douche has been suggested, but has its risks, and the author considers the other method efficient; (4) the bath should be of pure water: alkalies, soaps and disinfectants are all irritating to the infant's skin; the only addition permissible is Unna's superfatted soap; the bath should be at a temperature of 95° F., so as not to produce cutaneous hyperemia and consequent nerve symptoms (in one case only is a hotter bath permissible—namely, in an asphyxiated child in whom the ordinary means of stimulating respiration have failed; it should then be given at 100° to 104° F.)—the bath may last ten or fifteen minutes, if needed for cleansing; (5) dry the child with warm cloths, but not too hot—a mistake often made; for rapid drying, sheets of absorbent cotton are excellent; (6) powder the child with a fine absorbent powder, perhaps sterilized; an excellent one is Venetian talc and powdered starch, of each 1 3/4 oz., crystallized carbolic acid 3/4 gr., essence of lemon 1/2 oz.; the whole surface should be evenly powdered, avoiding excess at any part.—*British Medical Journal*.

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Diseases of the Digestive Organs in Infancy and Childhood, with Chapters on the Diet and General Management of Children, and Massage in Pediatrics. By Louis Starr, M.D., late Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania; Consulting Pediatrician to the Maternity Hospital, Philadelphia, etc. Third edition, rewritten and enlarged. Illustrated. Published by P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1901. Pp. ix.-448. \$3.00 net.

The additions made to this, the third, edition of Dr. Starr's work include the sections on simple atrophy, infantile scurvy, rickets, lithemia, infectious follicular tonsillitis, nasopharyngeal adenoid hypertrophy, proctitis and appendicitis. Extensive additions also have been made in the section on feeding.

The greatest interest attaches to the subject of feeding, and as the author's name has been signed to articles that have shown some opposition to what is usually designated as "laboratory milk," it is natural to turn at once to this part of the book. Dr. Starr has had unsatisfactory results with laboratory feeding in a large class of cases. The milk occasioned malnutrition, scurvy and, particularly, gastroenteric catarrh. He believes that the composition of the milk is altered by the separation of the fat and that the recombination affects the natural emulsion. These changes lessen the value and digestibility of the mixture. Further, he states that he has never seen an infant from two to ten months of age able to digest a laboratory mixture of stronger proteid percentage than 1.50, and he has frequently seen infants of two months and more unable to digest a mixture containing a proteid percentage of .50. He stands firmly for a home modification of milk and regards unseparated milk, a natural emulsion, as being the only one that insures the nutrition of a child deprived of breast milk. The slight daily variations are unimportant, as chemical accuracy is not the one aim of infant feeding. With an improved milk supply the advantages of home modification will be augmented. Laboratory milk is not entirely condemned, but its field of usefulness is said to be limited to special cases and for a short period. In

some of these contentions the work of Rotch, Ladd and others who are believers in the nutritive value of the separated, modified milk is controverted. The author has, however, the support of qualified observers when he states that laboratory milk has disadvantages that are always to be regarded when an infant is kept on it for many months. Dr. Starr has had a most unfortunate personal experience with the laboratory method of infant feeding, but he does not fail to acknowledge the advances inaugurated by the introduction of laboratory methods.

Under the head of simple atrophy there is described the slow wasting too commonly called "marasmus." The morbid anatomy of this state justifies more than the few lines devoted to it.

Rachitis and scurvy are considered in detail and the diseases are separated. They may coexist but a diet that quickly terminates scurvy has no effect on rickets.

In recent years lithemia in children has received the attention of the profession. The chapter on this perversion of metabolism makes clear the symptomatology and treatment of the lithemic state.

The diseases of the digestive organs are well described and the chapters are clear. Whether adenoids, tonsillitis, retropharyngeal abscess and other affections of the pharynx should be included in a work of the scope of the volume under review will depend upon the standpoint of the reader. With the exception of a few chapters, the book is well arranged and shows the results of extensive clinical experience.

The Practice of Obstetrics. By American Authors. Edited by Charles Jewett, M.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, N. Y. Second Edition, revised and enlarged. Illustrated with engravings and colored plates. New York and Philadelphia: Lea Brothers & Co. Pp. xiii.-786. Price, \$5.00 net.

The first edition of this book was published only two years ago, and its merit was so quickly recognized that the issue was soon exhausted.

A work of this character, however meritorious it may be, contains much that is outside the domain of pediatric literature. The editor has given some space to two contributors whose

writings on pediatric subjects are intended for the general reader. Dr. Bartley's argument for fresh, clean milk in the artificial feeding of infants should be studied by obstetricians who, too often, recommend proprietary foods when the puerperal patients in their charge are not able to nurse their offspring. The directions for modifying milk are sufficient for all practical purposes.

Dr. Chapin deals with the subjects of malformations, injuries and diseases of the new-born child. Attention is called to the injuries caused by difficult and protracted labor. These injuries are frequently overlooked and do not receive treatment until it is too late to be beneficial. No mention is made of suprarenal extract which has been used with success in cases of hemorrhage from the umbilicus.

The whole volume is attractive, and the illustrations and plates are above the average. Occasional typographical errors are to be noted, as, for example, when egg-albumen is printed "egg-albumin," but such errors are few, and the editorial supervision has been well done.

Manual of Childbed Nursing, with Notes on Infant Feeding. By Charles Jewett, A.M., M.D., Sc.D. Fifth edition. New York: E. B. Treat & Co. 1902. Pp. 84. Price, 80 cts.

This excellent little manual which has gone through four editions comes now revised and enlarged—not so much revised as to fail of recognition as an old friend—not so much enlarged as to affect its convenient size. It is concise and exact, clear, and should be easily understood by those for whom it is intended. There is a glossary of medical terms.

Valuable advice as to the proper care of the woman during pregnancy, labor and the puerperium is given in short, pithy sentences. The chapter on infant feeding has been brought up to date, and working formulas for feeding at different ages given, with instruction as to the home modification of milk. The feeding of premature infants and those of weak digestive power is explained and dietaries given for children up to the fifth year.

The little book is of distinct value to nurses, a value which would be increased by the use of the metric system of weights and measures.

The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, M.D., M.R.C.P., M.R.C.S., etc., Hon. Physician to the St. Pancras and Northern Dispensary, Late Clinical Assistant, Hospital for Sick Children, etc. Third, revised and enlarged edition. Adapted to the New British Pharmacopeia. With an Appendix on Poisons, their Symptoms and Treatment. London: Rebman, Limited. 1901. Pp. xv.-260. Price, 7s. 9d.

This handy volume of ready-to-use prescriptions must be in great demand if we are to judge by the number of editions in a few years. The chief change in the third edition is an alphabetically arranged synopsis of the more common poisons and the symptoms produced by them. The value of a compilation of prescriptions is questionable; but, in a suggestive way, such a book is helpful.

Comparative Weight of the New-Born.—The results found in the weights of children who are fed on the breast alone, on the breast and other foods and on the artificial foods alone, are reported by Bresset (*L'Obstétrique*, January 15, 1902). The experiments were carried out in 258 cases. The children were all under one year, and were divided into two groups, those under six months and those between six months and one year. One hundred and eighty-three were under observation for three months, and upon these the author bases conclusions. Fifty-one to 65 per cent. of those fed at the breast were above the average; 42 to 56 per cent. of those fed on a mixed diet of breast and artificial foods increased in weight, while only 36 per cent. of those fed on artificial foods alone increased in weight. This shows quite conclusively that the children of the working classes, from which the patients were taken, do far better when fed on mother's milk. These observations were made from the children of mothers who had at least four previous children and who were well supplied with milk. The author thinks it would be very interesting to compare these results with those obtained from the comparative weights of children of primiparæ or older women. Mixed diet gives better results than mother's milk between six months and a year; 56 per cent. of the children thus fed gained in weight, while only 51 per cent. of the breast-fed children took on weight.—*Medical News.*

Society Reports.

THE NEW YORK ACADEMY OF MEDICINE—SECTION ON PEDIATRICS.

Stated Meeting, May 8, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

A CASE OF ACUTE LEUKEMIA.

DR. SARA WELT-KAKELS reported this case. The patient was a child of eighteen months. The mother noticed that the child was getting very pale, and that a little blood and pus were occasionally passed with the stools. There was no rachitis, but the pallor was striking, and all over the body and extremities were numerous purpuric spots. The breath was fetid, the gums were bleeding and the post-cervical and axillary lymph nodes were enlarged. Murmurs of a soft, blowing character, synchronous with the systole of the heart, were audible over both the apex and base of that organ. The spleen was enlarged. The proportion of red and white blood cells was about one to three, and a blood count showed 94 per cent. of lymphocytes, the small form being three times as numerous as the large ones. There were 682,000 leucocytes to the cubic millimeter. The urine was slightly albuminous, but was free from blood and sugar. The child died in coma on October 18th, but no autopsy was allowed. The prognosis in these cases was hopeless, death occurring either from sepsis as a result of secondary infection or from asthenia caused by the hemorrhages or from coma produced by hemorrhages into the brain or meninges.

DR. CHARLES HERRMAN said that a case of acute leukemia in a child had been recently reported in which there was an enormous thymus gland.

ETIOLOGY AND PROPHYLAXIS OF SUMMER DIARRHEA OF INFANCY.

DR. HENRY HEIMAN read this paper. (See page 401.)

RENAL COMPLICATIONS OF SUMMER DIARRHEA OF INFANCY.

DR. J. LOVETT MORSE, of Boston, was the author of this paper. He said that the alterations in the kidneys in the acute diarrheas of children were chiefly of a degenerative type, and similar to those found in other affections in both children and adults. Fatty degeneration was unusual, occurring only in the chronic form, and microorganisms were not usually present. It was probable that other factors than the bacteria were concerned in the production of these renal complications. There was usually slight albuminuria, associated with an excess of uric acid or its salts. His own experience had failed to show any relation between the albuminuria and the symptoms presented. Koplik had described the symptoms as consisting of persistent vomiting with edema of the lower extremities. Holt had only met with one case at autopsy in which there had been enough nephritis to warrant the belief that the renal affection had taken any part in the fatal result. Acute pyelitis and pyelonephritis sometimes complicated acute enteric disease, being the result of infection with the colon bacillus, but the cases were mild and did not affect the prognosis.

TREATMENT OF SUMMER DIARRHEA OF INFANCY.

DR. CHARLES G. KERLEY presented this phase of the subject.
(See page 406.)

DR. WILLIAM L. STOWELL said that he had never found it necessary to give attention to the renal complications of the summer diarrhea of infants. His records at the Demilt Dispensary for the past three or four years showed very plainly the smaller number of cases of infantile diarrhea now occurring in the summer season. He had been accustomed to make use of intestinal antiseptics, specially salol, and also to irrigate the bowel, not only for the purpose of removing irritating matter but because of the constitutional effect that could be obtained by using hot or cool saline solution in accordance with the indications. The cases of summer diarrhea met with in the last few years had been of a distinctly milder type than formerly, apparently as a result of a better understanding of the subject of infant feeding by mothers and nurses generally.

DR. B. VAN DOREN HEDGES of Plainfield, N. J., spoke of chronic over-distention of the stomach by large quantities of

food as exerting a baneful influence, predisposing to disease of the gastrointestinal tract. Dr. Kerley had given the true treatment of infantile summer diarrhea. For his own part, he had always been chary of giving opium in the acute stage unless the case could be carefully watched. Moreover, if the use of opium reduced the number of the stools without improving their character it should be taken as an indication that this treatment was doing harm. Drugs played an unimportant part in the treatment, but bismuth was soothing and apparently beneficial. The physician should make it a rule to personally observe the stools.

DR. WALTER LESTER CARR said that in some cases of diarrhea that he had seen, the occurrence of renal involvement had been associated with persistent vomiting, out of proportion to other symptoms and not caused by food, considerable dyspnea and a very rapid action of the heart. Edema of the extremities was not commonly observed except in the protracted or severe intermittent cases of gastroenteric derangement. The affection of the kidney was usually so mild as to be overlooked altogether, and it was surprising what a small quantity of albumin was to be found in the urine. While he had used salol at one time in enteric diseases, and apparently with fairly good results, he had practically abandoned in later years the use of all intestinal antiseptics. He felt that under the general treatment outlined by Dr. Kerley the children did better than with intestinal antiseptics.

DR. L. E. LA FETRA spoke of a curious form of infantile disorder in which he claimed the intoxication in the intestine was local instead of general, as in ordinary cases of summer diarrhea. He had observed one fatal case of this kind, apparently dependent upon an intestinal paralysis and an interference with natural drainage. In such cases a saline cathartic was especially indicated.

DR. E. LIBMAN said that he had found in cases of renal disease complicating infantile diarrhea a parenchymatous degeneration of the kidneys, such as had been described by Dr. Morse. The fact that there was a coincident diarrhea favored the elimination of toxins. In the older methods of treatment opium and astringents were prominent, and it was probable that in this way the elimination of toxins was prevented, thus predisposing

to renal complications. Dr. Libman thought an effort should be made to classify these diarrheas more scientifically. The streptococcus and the pyocyaneus cases could certainly be separated without much difficulty, and this much, at least, should be done, even though such classification had no direct effect on the question of treatment.

DR. J. FINLEY BELL, of Englewood, N. J., spoke of an interesting epidemic of diarrhea that he had observed in a country village. The cases had been characterized by high fever, convulsions, vomiting, a marked tendency to relapse on returning to milk diet, and by a very high mortality. Inspection of the cows supplying the milk to these children showed an eruption on the teats and udders, which Dr. E. F. Brush pronounced cow-pox, and cultures from the pustules showed staphylococci and streptococci. The epidemic was quickly controlled by quarantining the affected animals and taking milk from another source. A similar experience had been noted in a neighboring town.

DR. W. L. BANER advocated the treatment laid down in the paper. He would be disposed, however, to use sulphate of sodium in doses of fifteen grains every three or four hours to a child of one year.

DR. J. J. WALSH spoke against the still prevalent custom of prescribing for these children salol or various coal-tar products with the idea of inhibiting the action of the bacteria in the intestine. By avoiding sudden changes of temperature, and by bathing little children frequently in very hot weather much could be done to prevent the occurrence of infantile diarrhea.

DR. MORSE said that he preferred to speak of these diarrheas under the general term, the acute enteric diseases of infancy. He would roughly divide these affections into three classes: (1) Those in which there was merely increased peristalsis or simple diarrhea; (2) those in which there were organic changes and (3) those in which there might or might not be organic changes. The last class constituted by far the majority of the cases. The withdrawal of milk was certainly a most important part of the treatment, but he thought it might be resumed more quickly than indicated by Dr. Kerley. Brandy was contraindicated, and opium should only be prescribed for those cases in which the peristalsis was unduly increased, and here such as-

tringents as tannigen and tannalbin would also be found useful. Irrigation of the bowel had, in his opinion, been overdone. The subcutaneous injection of salt solution was exceedingly useful in the very severe cases.

DR. KERLEY said that he believed salol was not beneficial and as it almost always disturbed the stomach it should be avoided.

DR. R. G. FREEMAN said that the physicians of the New York Foundling Hospital had never been impressed with the great value of bismuth alone in the treatment of the diarrheas of children, but recently they had been using bismuth combined with two or three drops of castor oil, and had been very favorably impressed with the results obtained.

Treatment of Phimosis.—F. Wenzel says (*Münchener medicinische Woch.*, Feb. 18, 1902) that many cases of phimosis may be successfully treated without the employment of operative procedures. Especially is this the case in the new-born and in boys under four years of age. In such instances he at first dilates the contracted orifice of the foreskin with a small sound, and then introduces a suitable forceps, and, by forcibly separating its blades, carries dilatation still further. This should be repeated in several directions, and the adhesions between the foreskin and the glans broken down. By such methods one is able to dilate the contracted orifice sufficiently to strip the glans. This is then carefully washed with an antiseptic solution and covered with an antiseptic powder, which should be repeated after every urination. By repeating these dilatations two to four times, at intervals of from eight to ten days, a permanent satisfactory result is obtained. When operation is necessary the so-called oval incision of Witzel is to be strongly recommended as preferable to circular circumcision or dorsal incision. By this method the dorsal surface of the glans-penis and urethral orifice are freed, and a much more slight result obtained than by the old methods. The operation may be conducted under cocaine anesthesia in adults. In patients from one to fourteen years of age general anesthesia is preferable. In infants no anesthesia is required.—*Medical Record.*

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting of March 20, 1902.

IN CHARGE OF

SECTION ON ORTHOPEDIC SURGERY.

ROBERT F. WEIR, M.D., PRESIDENT.

OPERATIONS FOR THE RELIEF OF PARALYTIC DEFORMITIES, WITH
SPECIAL REFERENCE TO TENDON TRANSPLANTATION,
was the subject for discussion.

DR. ROYAL WHITMAN read the opening paper, entitled,
INTRODUCTION; HISTORY; INDICATIONS FOR OPERATION.

He introduced the subject with a brief account of the objects of tendon transplantation, arthrodesis and their combinations.

He said, with regard to tendon transplantation, that as each muscle had an essential function, its loss could never be entirely replaced; therefore, even practical cure by this means was possible only when the paralysis was very limited in extent.

The operation was essentially palliative rather than curative, but as a means of lessening the tendency toward deformity and of improving function it was often of great service.

The actual results of the procedure had been obscured by premature and exaggerated reports of successful cases, but a careful study of the relation between the function of the normal part and the degree of disability would indicate what could actually be accomplished.

The original operation of Nicoladoni of transplanting the two peroneii tendons into the tendon Achillis was of value in lessening the tendency toward deformity, but it was absurd to propose to replace the function of the great calf muscle by two feeble muscles working at a disadvantage. The same criticism might be made of the attempt to make one muscle perform two different acts at the same time, as when a portion of the calf muscle was attached to the tibialis anticus with the aim of aiding dorsal flexion. Nor was it reasonable to suppose that a weak muscle could carry out its own function and at the same time that of a more powerful neighbor, as in the original opera-

tion of Parrish, in which the extensor proprius pollicis was attached to the tendon of the paralyzed tibialis anticus.

Of the various modifications of the technic of tendon transplantation, that advocated by Lange of relieving a muscle completely of its former function and attaching its tendon directly to the periosteum at the point of greatest usefulness was, perhaps, the most important.

In the treatment of cerebral palsy, the relief of persistent palmar flexion of the hand by transferring the flexors of the wrist to the extensor aspect was a valuable application of the procedure.

Arthrodesis occupied a much more limited field. As a means of replacing apparatus it was by no means sufficient, since deformity usually recurred after the operation at the knee and hip, and even at the ankle joint, when the part was unprotected. In exceptional instances it might be performed with advantage in the upper extremity.

The combination of tendon transplantation with arthrodesis or other operation was often of service. For example, the most effective procedure for the relief of paralytic talipes calcaneus, especially of the valgus type, was removal of the astragalus, arthrodesis, backward displacement of the foot and transplantation of the peroneii tendons to the oscalcis, a treatment that he had thoroughly tested.

The operative treatment of severe paralytic disability must be conducted with the aim of supplementing rather than supplanting mechanical support.

A paper entitled

DEFORMITIES DUE TO MUSCULAR PARALYSIS ; METHOD OF PRODUCTION; POSSIBILITIES IN TENDON TRANSPLANTATION; COMBINATIONS THAT HAVE BEEN MADE TO CORRECT DEFORMITY,

was read by DR. W. R. TOWNSEND.

He described the method of production of these deformities, spoke of possibilities of the operation and quoted from current literature the various combinations that had been employed by different surgeons.

He presented a young man, a patient, upon whom he had operated two years previously, who had extreme drop-wrist. He divided the palmaris longus, flexor carpi radialis and flexor carpi ulnaris where they entered the annular ligament, passed

them through the interosseous space just above the pronator quadratus, and fastened them to the extensor digitorum after shortening the latter by folding it upon itself. At present there is no drop-wrist, and patient can extend the hand and flex the fingers very well.

DR. V. P. GIBNEY read a paper entitled

TECHNIC OF OPERATION AND RESULTS OBTAINED AT THE
HOSPITAL FOR RUPTURED AND CRIPPLED.

The first operation was performed at the hospital July 7, 1896, upon a girl ten years of age, whose poliomyelitis developed at age of one year. She had equinovalgus with complete paralysis of the tibialis anticus. The tibialis anticus was exposed along with the superficial tendons in the dorsum of the foot, the tendon at its insertion divided and passed through slits in the exterior proprius hallucis and over and under the division of the exterior longus digitorum. It was sutured to these by means of silk, wound closed with cat-gut, sterile dressings applied and the foot was put up in moderate calcaneovalgus position after division of the tendon Achillis. At last word, six months after operation, there was still a little valgus; muscles acted fairly well, yet weak. There was no limp.

Since that time ninety-two operations had been done for the transplantation of tendons and muscles by the different surgeons connected with the hospital.

The technic followed differed little from that employed elsewhere, except in this particular—the skin incisions were along the vertical axis of the limb instead of the transverse or oblique.

He emphasized the importance of thorough aseptic work, and making the incision not larger than absolutely necessary to handle the tendons. It was better to make two or more incisions and tunnel between these for passage of tendons rather than extensive subcutaneous dissection. The sheath of the tendon should be divided longitudinally, and at the conclusion of the transference closed again with fine cat-gut.

Primary union was essential. It was safer to avoid touching the tendons for purpose of examination or section. Fine needles with silk should be passed through the ends of tendons and then covered with sterilized gauze until ready for trans-

plantation. The pinching of tendons with artery clamps or thumb forceps or other instruments was to be avoided.

A very important detail of technic was a thorough anatomical knowledge of the tendons, their points of insertion, their relations one to another, and their action.

Statistics did not yet show which was better—grafting or transplantation of one tendon into another tendon, or into bone or periosteum. It was never desirable to transplant a lifeless tendon into a live one, but the live tendon should be transplanted into the point of attachment of the lifeless one. Suturing of tendons together not always sufficient; where possible, end of tendon should be passed through button-hole of another, end spread out and quilt suture employed.

After tendons had been transferred, after the lengthened tendons had been shortened by looping or suturing or by sectioning and overlapping, tests of the position of the foot should be made. He had discarded kangaroo tendon for tendon suturing owing to size and employing silk.

It was unnecessary to employ drainage, save when extensive dissections were made, when he employed small drain for forty-eight hours. The hand or foot was put in a position of over-correction and fixed with plaster-of-Paris bandage; the parts not disturbed for two weeks, and even if healing was per priam, the position was maintained for some weeks, the apparatus being subsequently used for many months.

Of the operations, twenty-four were for equinovalgus, thirteen for calcaneovalgus, five for valgus, nineteen for equinovarus, twelve for equinus, three for calcaneus, ten for hemiplegic drop-wrist, five for dangle-leg, and one for congenital deformity of the thumb. With so many operators, at all times exercising the greatest liberty, combinations of tendons would suggest themselves. The aim, however, had been to correct deformity, to place tendons where deformity could not easily occur and where best functional results might be expected.

The operations for correcting drop-foot and valgus had varied. A very common one was to make an incision one and a half inches in length along the dorsum of the foot, beginning at tibio-tarsal joint and extending downward. Separate the skin beyond the extremity of the incision down to the tibialis anticus, divide the tendon, separate carefully from the underlying parts, pass it through a button-hole about the middle of

the extensor proprius hallucis and let it terminate among the divisions of the extensor longus digitorum. The operation was often supplemented by subcutaneous division of the tendon Achillis. When one was desirous of raising the outer border of the foot, either the whole or part of the tendon of the tibialis anticus was extended to the peroneus tertius and brevis.

An operation frequently done when marked valgus existed, and when the tibialis anticus was completely palsied—a part of the extensor proprius hallucis was passed through the tendon of the tibialis anticus and sutured into the posterior tibial at its insertion. Through the same incision the tendons of the extensor longus digitorum might be shortened by overlapping and suturing.

Two cases presented feet with muscles so much paralyzed that through the anterior vertical incision tendons along the front of the foot were shortened and sewn firmly to the annular ligament so as to limit motion. The result in one at end of one and a half years was fair; that is, the patient could make voluntary flexion to 90 degrees without abducting the foot. In the other case the result was negative—by negative he meant a condition in *statu quo ante*.

The technic of the operation for relief of drop-wrist was yet incomplete. The procedures thus far employed were lateral incisions, one over the radial border and one over the ulnar border with detachment of the flexor tendons and the insertion of the same into the extensor tendons. Again, the anterior and posterior incision about the middle and lower third of the forearm, then dissection through the interosseous space, so that the flexor tendons could be transmitted to the extensor tendons. There had been 5 cases with one good result—2 fair and 2 negative. In the earlier operations there was cicatrization in the interosseous space between the tissues in this locality and the tendons passed through. In two instances he attempted to meet this difficulty by implanting a scroll of celluloid in the interosseous space and removed it at end of four weeks to find the tissues growing into the ends of the scroll. In one case he had used a solid cylindrical piece of celluloid in the interosseous space; removed same at end of three weeks and found a patent opening through which he passed the proximal ends of the flexors, and sutured them into the extensor communis digitorum with good results.

Of the 92 cases operated upon, he had succeeded in tracing and getting final results in 69.

Good results were obtained in 32 per cent., fair in 44 per cent., negative in 24 per cent.

He further described the technic of a case of calcaneovalgus with complete paralysis of all the posterior muscles and the operation for dangle-leg with report of 5 cases.

Dr. Gibney presented nine patients showing the results of various operations for tendon transplantation and arthrodesis performed by Drs. Townsend, Whitman and himself. The technic and results in these cases has been covered in the above abstract.

DR. JOSEPH COLLINS read a paper entitled
SOME NEUROLOGICAL QUESTIONS INVOLVED IN TENDON TRANS-
PLANTATION,

in which was pointed out: (1) The necessity for the more careful and persistent treatment of cases of anterior poliomyelitis, principally by the hypodermatic use of strychnin and by massage, in order that the natural irritability of the muscle fibre be continued as long as possible; (2) the necessity of differentiation as to causation and morbid dependency of the different forms of cerebral palsies, in order that appropriate cases for tendon transplantation or other operative procedure might not be allowed to go unaided; and (3) the neuromechanisms of tendon transplantation. These, as well as the psychological questions involved were explained by word and diagram. In conclusion, Dr. Collins urged that the operation of tendon transplantation for function transference be given a wide scope of usefulness through more frequent employment of it, especially in cases of cerebral palsies.

DR. R. H. SAYRE said that the patients and the papers produced had presented the matter very clearly, and that there was little to add to either the theoretical or practical sides of the subject. In his own experience, he had had some very satisfactory results and others that were poor. In some instances more power had been gained than was anticipated, and in others there had been a stretching of tissues, so that there was a partial return of the original disability.

DR. B. SACHS considered the view taken by the readers of the papers very encouraging; many of the cases usually deemed hopeless were in reality capable of improvement; the operation

was rational, and he thought operative procedure applicable to cerebral spastic cases as well as to infantile spinal cases. He said the difficulty in operation lay in determining exactly which muscles were over-acting and which were under-acting, and the failures in determining this accounted for a great many of the negative and poor results.

DR. JACOB TESCHNER remarked that he was pleased to hear that a more favorable prognosis should be given poliomyelitis, according to Dr. Collins. His aim in treating long-standing poliomyelitis (three to twenty years' duration) had been first to build up the muscles to their highest possible capacity, and then to determine whether or not operation would improve matters. In many cases he had found operative treatment unnecessary after such treatment. He agreed with Dr. Whitman in that no operation should be undertaken until at least two years after onset of the paralysis. As to the treatment referred to, he quoted from a paper of his in the *Annals of Surgery*, November, 1899, his views not having changed.

DR. HENRY LING TAYLOR said it was to be remembered that tendon transplantation was still in the experimental stage, and that final conclusions could not yet be given. The idea that any paralytic foot or hand could be improved by tendon grafting and that apparatus could be eliminated was not founded on experience; in properly selected cases the procedure was of undoubted value. A very fair and conservative presentation of the subject had been given.

DR. RUSSELL A. HIBBS read a report of tendon transplantation operations performed at the New York Orthopedic Hospital. While the ultimate results had not been so good as the immediate ones, the operation seemed justifiable, for it made apparatus more effective. He thought the operation would probably prove to be an adjunct only to mechanical treatment.

DR. T. HALSTED MYERS said the results recorded at the meeting were unusually good and encouraging; he considered it interesting to note that there had been no bad results. He believed the upper extremity offered a field for better results than the lower. He asked if, in transplanting flexors or other tendons, any valuable motion had been lost in these cases. He thought the removal of deforming contractions of equal importance with the increase of power.

DR. TOWNSEND replied that the original action of the tendons was destroyed.

THE NEW YORK ACADEMY OF MEDICINE—SECTION
ON ORTHOPEDIC SURGERY.

Meeting of April 18, 1902.

GEORGE R. ELLIOTT, M.D., CHAIRMAN.

DR. J. H. WATERMAN presented the case of a child with congenital elevation of the left scapula. The X-ray revealed the condition of elevation and also a bony plate running from the spine of the scapula to the seventh cervical or first dorsal vertebra. The advice of the Section was asked as to treatment. It was stated that Wilson, of Philadelphia, had reported 2 cases treated by operation. In standing, the elevation of the shoulder was marked, and the head was held slightly inclined to the left side.

DR. RUSSELL A. HIBBS said he had observed a similar case in a subject twenty-five years old showing also a plate of bone connecting the scapula and the seventh cervical or first dorsal vertebra. He advised operation in the case presented by dividing the bony attachment.

THE CHAIRMAN wished to know what was done in the cases referred to, after division of the bony plate of attachment to prevent reunion.

DR. S. A. TWINCH stated that he had witnessed the operations of Dr. Wilson referred to, and that no steps had been taken to prevent reunion.

CONGENITAL DISLOCATION OF THE HIP.

DR. ROYAL WHITMAN presented a series of 10 cases illustrating the treatment of congenital dislocation of the hip. The cases were of interest as demonstrating the curability of the affection.

In the entire number there had not been a relapse since treatment had been discontinued. With one exception the patients had been operated upon by the bloodless method of Lorenz, slightly modified in certain instances. At the present time, as would be evident upon inspection, it was impossible to say which limb had been treated.

The record of the cases is as follows:

1. C. P., female, dislocation of the left hip, operated upon

at the age of nineteen months, April 19, 1897. The plaster bandage was removed on October 12, 1897.

2. O. H., female, dislocation of the left hip, operated upon at the age of five years, May 20, 1897. Plaster bandage removed March 15, 1898.

3. L. S., female, dislocation of the left hip, operated upon at the age of nineteen months, November 15, 1897. Plaster bandage removed June 15, 1898.

4. C. F., female, dislocation of the left hip, operated upon at the age of two and a half years, October 11, 1899. Plaster bandage removed June 2, 1900.

5. A. C., female, dislocation of the right hip, operated upon at the age of two and a half years, January 28, 1900. Plaster bandage removed August 9, 1900.

6. V. R., female, congenital dislocation of the left hip, operated upon at the age of four and a half years, January 31, 1900. Plaster bandage removed August 22, 1900.

7. E. R., female, dislocation of the left hip, operated upon at the age of two years, May 22, 1901. Plaster bandage removed September 13, 1901.

8. F. C., female, dislocation of the left hip, operated upon at the age of four years, July 2, 1901. Bandage removed January 7, 1902.

9. M. L., female, dislocation of both hips, operated upon at the age of two years, May 10, 1899. Plaster bandage removed November 10, 1899. A perfect cure on the right side, not perfect on the left.

10. M. A., female, dislocation of the left hip, operated upon at the age of five years, October 30, 1900, by arthrotomy, without excavation of the acetabulum. Plaster bandage removed October 10, 1901. Perfect cure.

DR. WHITMAN said that Case No. 5 had been of much interest. On removal of the spica bandage a limp had persisted for many months accompanied by slight outward rotation of the foot. If the limb were rotated slightly inward the X-ray picture showed an apparently normal joint. The persistence of the limp was due apparently to laxity of the capsule and to slight anterior twist of the upper extremity of the femur. To his surprise the child had steadily improved and at the present time, more than a year and a half after the discontinuance of treatment, there was practically no trace of disability.

In Case No. 9, the bilateral displacement, the left hip was originally recorded as a transposition, but after a lapse of nearly two and a half years there was no shortening and but a very slight limp. The head of the bone was apparently secure in a position slightly anterior and external to the normal. This result was far better than after the ordinary transposition in which there was always a certain amount of shortening and a characteristic limp.

The case in which arthrotomy was performed was not only of interest as showing the perfection of the cure obtained by this method, but also in that the patient is one of three children of one mother, each having congenital dislocation of the left hip. The eldest child, now about eighteen years of age, was untreated and presents a shortening of the limb of three inches. The second child, after three unsuccessful attempts by the bloodless method, was operated upon by the Hoffa-Lorenz method with excavation of the acetabulum on October 25, 1898, at the age of five years. The final result was very satisfactory.

DR. R. H. SAYRE considered that the result of the cases presented a great advance in the treatment of congenital dislocation and that a few years ago such a collection of successful cases would have been impossible.

THE CHAIRMAN said the remarkable showing of good results by Dr. Whitman ought to fully answer those still skeptical about the non-cutting operation. He noticed that the patients were all apparently under four years of age at time of operation. A very large percentage could be cured at that age.

The Lorenz method, even if it did no good, certainly did no harm, and in older cases, warranted its use before cutting was resorted to.

He further said that it could usually be determined at time of operation what the final results would be, at least such was his experience.

He asked Dr. Whitman what percentage of his operations showed failure, and if he reduced both hips at time of operation in double congenital hip dislocation.

DR. WHITMAN stated that in the case of bilateral displacement both hips were treated at one sitting. He said that he had modified the Lorenz method somewhat, in that he usually extended the plaster bandage below the knee, the leg being flexed upon the thigh at a right angle, with the object of fixing the

part more securely. At the end of two months the leg portion of the bandage was removed. In certain instances the femur was rotated slightly inward, in order to fix the head of the bone directly beneath, or slightly internal to, the femoral artery. He had on other occasions stated that not more than 25 per cent. of the cases were cured by this method, but the indications in his later operations were much more favorable. He did not agree with the statement of the last speaker that the result of treatment could be foretold at the time of operation. In many instances an anterior twist of the upper extremity of the femur made failure inevitable, and in many instances arthroscopy and osteotomy would be essential, excavation of the acetabulum being reserved for exceptional cases.

COXA VARA.

DR. WHITMAN presented a boy about seven and a half years of age, illustrating the cure of coxa vara by cuneiform osteotomy at the base of the trochanter. The patient had been presented to the Section at a previous meeting by Dr. Taylor. According to the mother's account, he had limped ever since he began to walk. Although the operation was performed but five months ago, the functional cure was perfect.

ALCOHOLIC ARTHRITIS.

THE CHAIRMAN presented the case of a boy, aged twelve years, who some three years ago began to have swelling of the joints of the fingers and wrist. The right wrist, the distal joints of the fingers of both hands and the distal joints of the first and second toes were involved. The liver was enlarged, projecting below the umbilicus, the spleen was enormously enlarged and there was only a slight enlargement of the lymph nodes.

The mother stated that the boy having been badly nourished she had given him whiskey daily for about one and a half years. He regarded this as the etiological factor of what he thought could rightly be designated alcoholic arthritis.

Arthritis deformans was excluded since that grows progressively worse and is not accompanied by enlarged spleen. Under proper nourishment and little general medication the symptoms had nearly all disappeared—Heberden nodes still persisted, something very rare in children.

DESTRUCTION OF THE LOWER EPIPHYSIS OF THE TIBIA.

DR. HIBBS presented the case of a boy aged eleven years, first

seen October, 1900, with deformity of right tibia following a severe fall supposedly resulting in fracture. The deformity was corrected by osteotomy. He suspected that the lower epiphysis of the tibia had been injured and this was corroborated by the recurrence of the deformity after operation.

At time of operation the right tibia was twelve and one-eighth inches long and the left thirteen. If left untreated the deformity would progress. Members of the Section were asked if they had had any experience in the treatment of such cases by destruction of the epiphysis of the fibula.

DR. WHITMAN said that a member of the American Orthopedic Association had made the statement at its last meeting that he suffered from a disability similar to the case reported, that his fibula was two inches longer than the tibia yet the disability and deformity were so slight that from his personal experience he had advised against operation such as had been suggested.

DR. SAYRE said he thought destroying the epiphysis of the fibula as suggested by Dr. Hibbs would not result in as useful an extremity as by leaving the limb untreated since it would produce considerable shortening. He suggested slitting the tibia lengthwise, sliding the pieces past each other and so lengthening the tibia sufficiently to bring the articular surfaces parallel with the ground.

DR. HIBBS also presented a child aged three years when first seen by him in October, 1900. One month previously it had been operated upon in a general hospital for osteomyelitis of the lower end of the right femur. This was followed by complete paralysis of the quadriceps extensor. This paralysis persisted with no response to either electrical current. No other muscle was affected and it was believed to be due to division of the tendon or muscle with failure to unite.

FRACTURED VERTEBRAL COLUMN.

THE CHAIRMAN presented a specimen of a fractured vertebral column removed from a man aged twenty-nine years. One year prior to that he attempted to hold a quarter of beef which had slipped from its pin and immediately felt a severe pain in his back. He remained in bed one week. He then attempted to go about, and did so for one year with gradually increasing

motor and sensory paralysis of both lower extremities, and there developed a marked kyphosis at 10" dorsal vertebra.

He was subsequently operated upon by Dr. Gerster, and evidence of fracture was found with bony fragments pressing upon the cord. These were removed, but Dr. Gerster expected no benefit to result. Patient finally died and the cord was found completely severed; deep reflexes lost.

The progressive nature of the paralysis and the absence of involvement of the bodies of the vertebræ with a well-marked kyphosis were interesting features, and also the faulty diagnosis of caries which at one time had been made. The angular prominence simulated the "bos" of Pott's disease very closely.

DR. W. M. LESZYNKY considered the history of the case very interesting, and thought that it was hardly probable that anyone from the history would have made a diagnosis of fracture. He thought there was a slight injury to the cord and dura which set up a myelitis secondarily, becoming finally complete with ultimate destruction of the cord. It was well established now that complete division of the cord produced loss of all reflexes below the site of section. He cited a case of his own of a patient who had fallen from a height of twenty feet fracturing the tenth, eleventh and twelfth dorsal vertebræ with immediate paralysis and complete loss of reflex action, sensory and motor power. The diagnosis was readily made in that case and confirmed at autopsy.

EARLY TREATMENT OF DISABILITY FOLLOWING INFANTILE PARALYSIS.

DR. A. B. JUDSON reported a case of varus of the left foot in a boy of five years. Leverage by braces cured the varus but could not remove paralysis of calf muscles and calcaneus. The riser was omitted from the inner side, where it had given leverage against the varus, and the upright was made of one piece with the tread which was shaped to the instep and could readily be bent down or up as the boy required more or less "toe" in walking. With this brace (exhibited) walking was without a trace of lameness. Deformity had been prevented, and fibres developed which without early locomotor activity would have disappeared.

DR. CHARLES H. JAEGER presented specially made gouge devised by a French surgeon for purpose of scooping out the acetabulum in operation for congenital dislocation of the hip.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, Tuesday, March 11, 1902.

DR. SAMUEL MCCLINTOCK HAMILL, PRESIDENT.

DR. JOHN LOVETT MORSE, of Boston, addressed the Society, by invitation, on

SOME DISORDERS OF THE KIDNEYS AND BLADDER IN INFANTS.

He had examined the urine of every baby admitted to his service at the Infants' Hospital during the last two years as well as of many in private practice. He gives the character of the urine of the normal newly-born infant, of albuminuria in the new-born and of uric acid infarctions. The normal urine in infancy is then described, and its characteristics in hematuria, acute nephritis, primary nephritis, secondary nephritis, chronic nephritis, acute pyelitis and pyelonephritis, and cystitis are given with illustrative cases. His experience leads the author to believe that diseases of the kidneys and bladder are not uncommon in infancy, and that the examination of the urine will render a diagnosis possible in many doubtful cases and throw light on many obscure symptoms. As the symptoms of diseases of the urinary organs in infancy are not only almost never characteristic, but usually misleading, many cases will be missed unless the urine is examined as a routine procedure.

DR. J. P. CROZER GRIFFITH said that for some time he had been investigating more carefully the condition of the urine, and had become thoroughly convinced of the frequency of renal disorders in infants and children. He particularly directed attention to the fact that, as was noted by Jacobi and Holt, death in cases of gastroenteritis is, in a considerable number of instances, actually due to a terminal nephritis with uremia.

He thought it very important also, as Dr. Morse had said, to remember that convulsions in infancy are not infrequently uremic. The convulsions do not differ in their clinical appearances from their usual forms; and the fact that they are due to uremia very readily escapes one, unless in such cases examination of the urine is carried out as a routine procedure. He mentioned a case which had recently been brought to the Children's Hospital with convulsions, apparently of a reflex nature,

and with the usual fairly favorable prognosis. Examination of the urine, however, showed the presence of albumin and casts in large amounts, and death resulted.

A secondary nephritis from infectious diseases is also a very important matter, not only in connection with scarlet fever and diphtheria, in which it is generally known to occur, but also in certain other infectious diseases, in which it is less commonly recognized that nephritis may frequently, even in infancy, be a complication. Even such a mild affection as varicella may be in rare instances complicated by nephritis. A form of severe nephritis accompanying influenza has also been described. Since January 1st there had been a large number of cases of typhoid fever in the Children's Hospital, and only one of these cases had proved fatal. This child had a complicating pneumonia, but also had an acute nephritis, and the latter was thought to be a very important factor in the production of the fatal issue. He also referred to several cases of pneumonia in which nephritis had been determined to be present; and likewise spoke of a case of nephritis with edema due to congenital syphilis, which had been reported by Dr. Newcomet and himself. This occurrence is apparently rare, although several cases had been collected from the literature a few years ago by Audeoud.

He emphasized Dr. Morse's statement that edema is not a characteristic sign, either from the positive or from the negative standpoint. It may occur in other conditions; it is especially likely to be seen in marantic infants, who may be quite edematous, particularly about the hands, feet and face, and yet show no albumin whatever in the urine. On the other hand, edema may be entirely absent in nephritis.

His own experience agreed with that of Dr. Morse as to the occurrence of hematuria in scurvy. He had reported one case that was an instance of the fact that hematuria may be the only sign of that disease. This baby continuously grew worse under ordinary methods of treatment, and improved only when orange-juice and other treatment directed to the possible existence of scurvy were given. In another case hematuria occurred with distinct evidences of scurvy. Thinking that it might be of interest in this connection, he had had the records examined of the last one hundred infants and children admitted to the Children's Hospital, with a view of determining the frequency

of renal or vesical trouble in these cases, and had found that there were 16 cases in which nephritis was found to be present and three instances of cystitis.

As an evidence of the readiness with which nephritis is overlooked, he referred to one case in which the child had been sent in with the diagnosis of gastritis. The urine contained large numbers of casts and considerable albumin, and the symptoms improved as the ordinary signs grew better. In this case, it was quite evident that the disease was purely an acute nephritis.

He also referred to a case of pneumonia in which there were signs of nephritis, the urinary signs of the last-mentioned disappearing with those of the former; it was evident, therefore, that the nephritis was a result of the pneumonic intoxication. Another similar case was referred to; and still another, in which the nephritis did not entirely disappear, while the patient was under observation. A fourth case, of croupous pneumonia apparently about to convalesce, died with the evidences of severe nephritis. The 100 cases included 34 of croupous pneumonia; and of these 34, 5 showed nephritis,—a pretty large percentage.

As to the symptomatology of nephritis in early life, the fact cannot be too strongly impressed that there are, as a rule, no definite symptoms. There is often fretfulness with some fever; or, if fever has been present before, an increase in its intensity. These are often the only symptomatic evidences of the disorder of the kidneys. It is important to remember that even babies, but particularly older children, may show a decided change in disposition, as an evidence of the renal disease. He mentioned a case in a girl of about ten years, in which the only abnormality noticed for some time was a very decided change in disposition, with marked irritability. An examination of the eyes revealed some suspicious appearances; the urine was then tested, and the presence of nephritis discovered. It is very important not to neglect these changes of temper in children. They may, of course, mean many things; but they usually indicate some abnormality, and one of the things that should be thought of under the circumstances is nephritis.

As to the method of collecting the urine, he had found it almost impossible to use any one procedure with satisfaction. He had had difficulty in securing a rubber catheter small enough, but had obtained some of prepared silk. These could be used

with entire satisfaction in infant girls; in infant boys, however, he had found it often very difficult to employ the instrument. In these, therefore, he generally collected the urine by adjusting a wide-mouthed bottle over the penis and attaching it by straps around the waist. This was satisfactory, except when the infant was restless; but even in this case, a careful watching for the time when urine was passed would be generally successful. The plan has been proposed of allowing the infant to lie, almost completely undressed, on a rubber sheet, and draining the urine from this into some vessel. Dr. Griffith did not consider this advisable, on account of the necessary exposure to the child.

DR. J. D. MILTON MILLER said that he had especially noted that Dr. Morse's paper concerned children below two years of age, and that the latter had said that he had examined the urine in every case that had been admitted to his service during the last two years. He had wondered whether the urine had been collected by catheterization. He had always felt reluctant to use that method because of a fear of producing cystitis, for it had always seemed to him that the danger of causing bladder disturbance was a very decided one. He wished to ask Dr. Morse, whether he had ever met with this complication of catheterization. He had not seen it personally, but had had little experience. He referred, however, to the case of an infant girl, in which he had carried out catheterization at least a dozen times without any signs of cystitis developing. He had been unsuccessful in infant boys.

He then referred to a case of ileocolitis in an infant of fifteen months, which was an example of the readiness with which nephritis, particularly when it is a complication of some other marked disease, may be overlooked. The child had exhibited no definite signs of nephritis, but a routine examination of the urine had shown the presence of albumin and casts. He also referred to the probable frequency of influenzal nephritis in infants. As a complication of influenza, nephritis is known to be comparatively common in older patients; and he believed that more frequent urinary examinations would make it evident that it is not uncommon in infants.

DR. RIESMAN said that several years ago, when he was doing the pathological work at the University Hospital, he had met with several cases of hemorrhagic infiltration of the kidneys in the new-born, which, in one or two instances, was associated

with hemorrhage into the suprarenal glands. No satisfactory cause for the lesions could be determined. In one case, artificial respiration had been carried out, and it was considered possible that trauma had produced clot. In another case, there was a thrombus in the renal vein, and this thrombosis had probably caused the hemorrhagic condition of the kidney. Bacteriologic examination of the blood in nearly every instance showed the existence of pyogenic infection; and this might have been the ultimate cause of the infarction.

He also mentioned the case of an infant in which there was frequent micturition, with a very large quantity of urine, which contained no sugar and showed no other abnormalities, except a very low specific gravity. He had been in doubt as to the actual nature of the case, but was inclined to consider it diabetes insipidus, although the child was thriving.

DR. MCKEE said that the edema which occurs in gastrointestinal disturbances and in some other conditions when nephritis is absent, might, he thought, be understood through a study of the action of lymphagogues. It had been well determined that those lymphagogues which increase the solid contents of the lymph cause damage to the vessel-walls. The latter are also damaged by the poisoning which occurs in nephritis and many other toxemias, and he thought it probable that the edema seen in the absence of nephritis is due to injuries to the vessel-walls produced by an intoxication.

He had observed nephritis in the pneumonias of infancy, and mentioned a case which he had recently had under observation. In this, there had been catarrhal pneumonia following whooping-cough; and, when seen, a consolidation of the right apex. The case was at first thought to be tuberculosis; and when some albumin and a great deal of pus were found in the urine, it was suspected that there was tuberculosis of the kidney. Both the renal and the pulmonary conditions entirely cleared up, however, and it became fairly evident that this was a case of nephritis complicating unresolved pneumonia.

In conformation of Dr. Riesman's observations, the speaker also mentioned the case of an infant that had passed large quantities of urine of low specific gravity. This case, he had been able to follow for nearly ten years. The urine had exhibited the same characteristic throughout this time, and the child had had nocturnal enuresis.

As to the occurrence of nephritis in influenza, this same child had developed that complication. This case was an excellant example of the truth of what Dr. Griffith had said regarding the obscurity of the signs in such cases. The child had had continuous fever and prostration, and seemed to be passing into the course of typhoid fever. Examination of the urine, however, showed on the third day evidences of decided nephritis.

DR. ROSENTHAL said that he had frequently made use of antitoxin, and had made it a regular custom, after giving injections of antitoxin, and particularly after intubation or tracheotomy, to examine the urine. He had found albumin present with great frequency. When much albumin is present in cases in which intubation is necessary, he had found that the child almost always dies. The cases mentioned, were, of course, almost always instances of actual diphtheria; and albuminuria would naturally be expected to be present in many instances. It seemed probable to him that the antitoxin had had little influence in the production of the albuminuria.

DR. GRAHAM said that he believed that he, as well as most other practitioners, had been rather lax in the examination of the urine of infants; but that he had, for a considerable time past, insisted upon the examination of the urine of every child with any infectious disease. This had often led to the discovery of nephritis, when it could not otherwise have been suspected. He had been very much interested in the prognosis of these cases, and had followed a large number of them for a long period. He had found that, as formerly stated, and as particularly insisted upon by Holt, they usually run a favorable course and commonly get entirely well.

He referred to a case which he had seen only a few hours previously, and which was a good illustration of the development of uremia in infants. This child had been attacked with measles two days previously; and, in the stage of active eruption it had suddenly gone into a convulsion. After this, it had been fairly clear mentally, so far as could be told, for a short time, following which it had had another convulsion. Since that time—about noon—two more convulsions had occurred. Directly after the onset of the convulsion, Dr. Graham had had the urine examined, and a good deal of albumin and many casts had been found. Such cases are sufficient evidence of the truth

of Dr. Morse's statement that one is remiss unless he makes a systematic examination of the urine in infants, just as he would in older persons.

DR. ESDALL asked whether Dr. Morse had any special apparatus to recommend for the collection of urine, particularly for the accurate collection of the twenty-four hours' urine. In attempting to carry out some investigations of metabolism in infants, he had been forced to the conclusion that the only apparatuses available that can be depended upon to collect the total quantity of urine necessitate so much restraint of the child and keep it in such an abnormal position that the results of investigation must be extremely unsatisfactory.

As to the question of the origin of the albuminuria of the new-born, he was strongly inclined to believe that it is largely due to uric acid. This acid has been robbed of most of its supposed powers of producing disease by recent investigations; but the His school have shown definitely that it will cause local necroses when in an extremely concentrated form, and, on the contrary, the Ebstein school have failed to show that the deposits of uric acid in the new-born are secondary to alterations in the epithelium produced by some other cause; therefore, the uric acid deposits are probably primary, and very likely produce at least a considerable amount of the irritation themselves.

He asked Dr. Morse whether he had had any personal experience with what Pel, in especial, describes as congenital or inherited chronic interstitial nephritis. From the latter's description, one would think that the condition is not very uncommon. He had been unable to discover any cases that seemed to belong to this class.

DR. MORSE, in reply, said that he had no especial apparatus to recommend for the collection of urine. At the Infants' Hospital, he was accustomed to use for boy babies the Walker-Gordon nursing bottle, tied around the waist with tape; for girls, he used an apparatus of somewhat basin-like form, made of an oakum ring covered loosely with dental rubber. This was placed inside the diaper, and had proved very satisfactory. He had never made any attempts to collect the total twenty-four hours' urine. From what he had seen of the descriptions of the

methods, however, he thought that it was extremely difficult and unsatisfactory.

In reply to Dr. Miller's question, he stated that it had not been found necessary to use a catheter in any of the cases seen in the hospital wards; but he had often used one in out-patient work, had found no trouble in using it, and had seen no bad results from its use. The question of the danger of causing cystitis always comes up in the discussion of the subject of renal disorder in infancy. He thought that an examination of the printed discussions concerning this point would show that the men who have had experience always state that they have seen no bad results, while those who fear that cystitis may be caused are always those that have not used the method. Personally, Dr. Morse had never seen any evidences of cystitis following the use of the catheter in infants, and he thought that cystitis could be avoided by proper care. On the contrary, he had, in a number of instances, discovered the presence of cystitis through the use of the catheter, when it had not been suspected that this disease was present. In these cases, the use of the instrument, through establishing the diagnosis, had led to the cure of the cystitis.

As to Dr. Rosenthal's statements concerning antitoxin, he said that in the Infants' Hospital in Boston it is the regular custom to give 300 units of antitoxin to every infant immediately after its admission, and to repeat this every three weeks. The reason for this is, of course, the frequent occurrence of outbreaks of diphtheria when such precautions are not taken. These outbreaks are almost always due to some case of nasal diphtheria, so slight as to be overlooked. In spite of this use of antitoxin, albuminuria is not at all common, and this indicates pretty strongly that antitoxin does not frequently produce albuminuria.

As to the statements of Pel and other authors who describe a congenital tendency to nephritis—particularly to interstitial nephritis—Dr. Morse considered that the reports of these authors are such as to indicate that a tendency of this kind does exist. Personally, he had never seen cases in which he thought the condition could be considered an inherited nephritis, or in which there seemed to be an inherited tendency to nephritis.

Current Literature.

MEDICINE.

Finch, H. C.: Report of Case of General Emphysema, Complicating Whooping Cough and Catarrhal Bronchitis. (*American Medicine*. Vol. iii., No. 16.)

A girl, aged two and one-half years, with whooping-cough developed bronchitis at the close of the second week. While this complication was improving, the dyspnea and cyanosis became worse and an emphysematous swelling appeared in the neck. This condition became generalized, and incisions into the subcutaneous tissue failed to give relief. About five or six days after the appearance of the emphysema the patient died. Autopsy showed that death was due to pulmonary emphysema affecting all the lobes of both lungs. Rupture had occurred between the upper and middle lobes of the right lung and successive paroxysms of coughing caused the emphysema to involve the mediastinum and subcutaneous tissues.

Hollopeter, W. C.: How to Study Sick Children, etc. (*The Medical Bulletin*. May, 1902.)

Pediatrics is an excellent stepping-stone to general practice. It is generally regarded as a very difficult branch of the profession, but this is because of the peculiarity which obtains in our diagnostic resources for infancy. The modern scientific methods are often at a disadvantage here, and the older, somewhat neglected resources of pre-scientific days are always of service, including a study of physiognomy, posture, etc. It is well after responding to a summons to see a child, to begin by getting the family history, the mode of feeding, etc., before seeing the patient. The opinion of the mother, however ignorant she may be, is usually of value. Ordinary inspection is of most service while the child is sleeping; and the salient features of a case may be recognized oftentimes without rousing the patient.

Love, R. J.: Enteric Fever in an Infant Four and One-half Months Old. (*The British Medical Journal*. No. 2155.)

The author was first summoned to see a young woman whom he found at about the tenth day of typhoid. She had nursed her infant throughout and it appeared well and strong.

It was weaned at once, but was found two weeks later to have contracted the maternal disease in a severe form. The leading symptoms were enlarged spleen, tenderness over the right iliac region, marked diarrhea, tympanitis, a temperature of 103° F. and rose-spots. Bronchitis was present as a complication. The case ended fatally. There were or had been other cases in the same family.

Day, J. M.: The Diagnosis of Scarlatina. (*The Dublin Journal of Medical Science.* No. 363.)

The chief symptoms of scarlatina are: vomiting, sore throat, elevation of temperature, frequent pulse, and rash. Nausea and vomiting must be discounted as a symptom in young persons subject to attacks of nausea from various causes. The rash on the hard palate is diagnostic, especially in cases of scarlatina *sine eruptione*. The pulse-rate is more characteristic than the temperature, and often remains higher than normal after the fever has disappeared. The rash is never seen in the circumoral zone, and is almost invariably out before the third day. A browning of the flexures persists after the rash fades. Sweating is uncommon, but may be present in persons of rheumatic tendencies. Desquamation may appear on the sixth day, or not until the twenty-first. When one finds the tips of the fingers polished, and desquamation on the trunk and extremities which commenced in small pin head points and has spread centrifugally, one may, as a rule, diagnosticate scarlatina.

The disease must be differentiated from rötheln, measles, septicemia, urticaria, erythema, rheumatic fever, meningitis, enteric fever and drug-rashes, in the order of frequency of mistaken diagnosis. As regards the fourth disease of Dr. Clement Dukes, which we are accustomed to call rötheln with a scarlatiniform rash, it is diagnosticated from scarlatina by the absence of vomiting and rapid pulse, and the presence of enlarged nodes and a rash all over the face and body on the first day of the disease, completely covering the body on the second day. It consists of large, pink spots, not so bright as scarlatina, with the absence of the browning and erythema seen in the latter disease, its rapid subsidence, and the absence of sequelæ. Rötheln is not always free from complications, pneumonia among others. Scarlatina, being a fixed disease which changes its type slowly, is seldom, if ever, contracted twice. Measles is not so definite a disease as to severity or type, and may be con-

tracted a second time. Rötheln is more frequently contracted a second time, and the form of the disease may vary as regards the appearance of the rash.

No attempt should ever be made to diagnosticate the disease from the character of the rash without seeing the whole of it, nor to make a diagnosis by artificial light. When in doubt, always act as if the more important disease were present, until its absence be certain.

Variot, M. G.: A Case of Exophthalmic Goitre with the Three Typical Symptoms : Exophthalmos, Goitre and Tachycardia, in a Boy of Four and One-half Years. (*Gaz. des Mal. Inf.*. Vol. iv., No. 3.)

The child had always been delicate, though his family history was good. An attack of pertussis complicated by double bronchopneumonia left him thin and feeble, and it was noticed that his eyes bulged. The exophthalmos became very marked, and the pupils were equally dilated; Graefe's sign was absent. The thyroid body was decidedly enlarged, the right lobe more so than the left. There was a marked vascular thrill on both sides of the neck, and a continuous murmur was heard over the great vessels. The pulse varied from 152 to 168 per minute; even during sleep it never fell below 140. The heart was enlarged, and a musical mesosystolic murmur was heard, probably of extra-cardiac origin. Nothing in the lungs explained the paroxysms of cough, which were probably laryngeal in origin. Both liver and spleen were enlarged; attacks of diarrhea alternated with constipation, but the appetite remained good. Anemia became very marked. Vaso-motor disturbances were present, the skin becoming suddenly red (scarlatiniform) with the slightest emotion. It was impressionable and easily agitated, but not hysterical; tremors were not present.

Thyroid and tonic treatment brought about marked improvement in two months, especially in the cardiac symptoms. Salicylate of soda, as recommended by Baginsky in adult cases, gave negative results. The case is the youngest which has been reported.

Sorgente, P.: Case of Chylous Pleurisy in a Girl Seven Years of Age. (*La Pediatria.* Anno x., No. 3.)

The case reported shows that it is possible for a child to have a chylous exudate in the pleura resembling diluted milk

and containing much fatty matter. This fluid is, in fact, a fat-emulsion and also holds a special globulin in solution. In the author's case there was doubtless a rupture—probably due to tuberculous ulceration—of one of the large lymphatic trunks to the right, which accident was also favored by the compression of hyperplastic peribronchial lymph nodes. The case in question recovered in ten months.

Little, E. Graham : Two Cases of Variola. (*The British Journal of Dermatology.* No. 162.)

In the first case the eruption of smallpox followed and complicated a general pustular syphilide. The patient was but four months old and a victim of congenital syphilis. The other child presented a coincidence of smallpox and well developed vaccine pustules. The exposure to variola dated back fourteen days and vaccination was not performed until six days later. The vaccine virus may have modified the eruption of smallpox for the cutaneous lesions were out of proportion to the severity of the fever and general reaction; being much smaller and less numerous than in typical cases.

Ragno, F. : Abnormal Manifestations of Infantile Tuberculosis. (*El Progreso Medico.* Anno. xii., No. 2.)

A baby aged fourteen months presented the following symptoms: Enlarged lymph nodes in the cervical, supraclavicular, axillary and inguinal regions; morning temperature, 101.8°; tachypnea (80 per minute); accesses of paroxysmal cough; rapid pulse which bore no definite relationship to the temperature curve; emaciation. Physical examination revealed dulness in the interscapular region.

The patient became worse during the observation period, and night sweats were added to the symptom complex. The fever, however, which appeared to be due to intercurrent bronchitis, disappeared spontaneously.

Hector, Edward B. : A Case of Subcutaneous Myiosis. (*The Lancet.* No. 4104.)

A boy who was healthy and well cared for developed a hard lump over the nuchal region. There was no lesion of the superjacent skin. About a fortnight later what appeared to be

a boil formed over the left parietal bone and discharged the larvæ of some unknown insect. From that time on numerous swellings appeared over the head and face, and now and then a maggot would come to the surface. A certain amount of pus always accompanied the discharge of the larvæ, and much adenopathy coexisted, but the general health did not suffer. The numerous lesions represented nothing more than the results of the subcutaneous migration of the maggots, which were finally all discharged. The patient remained in good health. The fly who caused the pathologic state was probably imported from Africa in some personal baggage.

Mardorf, W. C.: Complete Transposition of Viscera: A Report of Three Cases. (*St. Louis Courier of Medicine.* No. 152.)

One of the cases was that of a girl aged eleven years. She had had a cough from birth, with regularly recurring attacks of winter bronchitis. Some anemia was present. It is of little use to attempt to trace any connection between the visceral inversion and these ailments. The transposed position of the heart, liver and spleen can be mapped out very readily.

Salazar, Guillermo: Spasmodic Bronchitis; Recovery. (*La Medicina delos Ninos.* Tomo iii., Num. 27.)

The patient was eight years old and in good physical condition with the exception of a dry cough and expiratory dyspnea, while râles were heard on auscultation. A diagnosis was made of spasmodic bronchitis, dating from an attack of ordinary acute bronchitis contracted during the preceding year. The condition was latent during the summer months. The patient made a good recovery under tincture of lobelia and ammonium iodid.

Collier, Mayo: A Case of Acquired Deaf-Mutism, Probably Due to Impacted Cerumen in the Ear, etc. (*The Journal of Laryngology, Rhinology and Otology.* Vol. xvii., No. 4.)

The hearing and speech were natural until toward the age of three years although the girl had passed through severe attacks of typhoid and measles. Hearing then appeared to fail, and soon afterward distinct speech became impossible. This state of affairs continued until the patient was nine years old. The author in examining her for some anatomical basis for the defective hearing found impacted cerumen in both ears, which

was removed after much trouble. The membranes were found to be healthy although somewhat contracted and opaque. The subsequent improvement was remarkable. True acquired deaf-mutism is almost always due to labyrinth disease, is absolute, and associated with tinnitus, vertigo and incöordination.

Evans, W. A.: The Continued Fevers of the South.
(*Memphis Medical Monthly*. Vol. xxii., No. 4.)

From personal experience and a study of the literature the author is convinced that there is no febris innominata, but that most of the cases of this supposed group are typhoids. In a malarial district typhoid fever is modified in its symptomatology by malaria. The post-malarial continued fevers are usually malaria, pure and simple. The continued fevers left after the above have been subtracted are of the following groups: septicemia, tuberculosis, anemia, leukemia and diarrheas.

Fischer, L.: A Case of Stomatitis Gangrenosa (Noma).
(*The American Journal of the Medical Sciences*. Vol. cxxiii., No. 4.)

A girl, seven years old, developed gangrene of the gums and right cheek three months after an attack of scarlet fever, and while still in the convalescent stage. Almost the whole cheek became involved very quickly. A mouth wash of 50 per cent. peroxid of hydrogen was ordered, the Paquelin cautery used, and ichthyoil and lanolin applied. In about three weeks the child was discharged, cured.

No bacteriological examination was made.

Méry, H.: Infantile Asthma. (*Gaz. des Mal. Inf.* Vol. iv., No. 7.)

A very rachitic boy of five years had suffered from repeated attacks of bronchitis accompanied by asthmatic crises. In infantile asthma the attacks may be of three kinds: first, so violently spasmodic as to resemble the asthma of adults; and this is the rarest form. Second, the catarrhal bronchitis dominates the scene, and the spasmodic character is less marked. Third, the attack assumes the character of a sudden pulmonary congestion or even of a bronchopneumonia. That which characterizes infantile asthma and completely differentiates it from the adult variety, is the existence of an intense and prolonged bronchial catarrh, or even of a true pulmonary congestion.

Inhalations of pyridin, seven to eight drops placed on a handkerchief, are very efficacious, and may be repeated four to

five times a day. Tincture of lobelia is of service between the attacks, as are turpentin, iodid of potassium, arsenic and baths. In symptomatic asthma the cause should be removed (adenoid vegetations, for instance).

Iovane, Antonio: Experimental Researches on Alcoholic Cirrhosis of the Liver in Infancy. (*La Pediatria.* Anno x., No. 3.)

Atrophic cirrhosis of the liver is rare in childhood. In regard to the results of animal experiment, it is impossible to produce true cirrhosis in dogs and rabbits by feeding them with amylic alcohol, although congestion of the mucosa of the stomach may result from prolonged administration of this substance. The liver is slightly congested while the microscope reveals a diapedesic infiltration about the branches of the portal vein; otherwise the organ is quite normal. In acute intoxication some fatty degeneration of the hepatic epithelia is seen, while in chronic poisoning these cells remain normal. In the author's experiments all the animals were young. Compared with similar researches made with adult animals they appear to show that the hepatic cells in the young are either much more resistant toward alcohol, or else, that if destroyed, they are readily reproduced.

The views of De Giovanni and Bonome are of importance in the comprehension of cirrhosis of the liver. The former believes that he has demonstrated a structural predisposition to this disease, while the latter made the discovery that the celiac plexus undergoes notable changes which are parallel to those in the liver. It is possible that these two discoveries are the expression of one and the same fundamental truth.

Millard, C. Killick: The Supposed Infectivity of Desquamation in Scarlet Fever. (*The Lancet.* No. 4101.)

The following are the chief arguments against infection by desquamation: 1. There has never been any evidence to prove that scarlatina is thus propagated. 2. Infectivity is known to begin in advance of desquamation and to continue after it has ceased. 3. Scarlet fever wards abound in desquamating epidermis, but the disease does not extend through the immediate neighborhood. 4. There appears to be no connection between patients discharged during desquamation and "return-cases."

A series of 5 "return-cases" shows that the discharged patients who transmitted the disease all had persistent nasal

discharge, save 1, who had an unhealed crack behind the ear. Of these 5 but 1 was still peeling.

SURGERY.

Ashby, H.: A Case of Purulent Peritonitis Associated with Empyema; Recovery. (*The Lancet.* No. 4103. 1902.)

A delicate girl of eight and a half years who had had attacks of bronchitis was taken suddenly ill with vomiting, diarrhea and pain in the abdomen; fever and cough were also present, with jaundice for a few days. Signs of consolidation appeared in the lower two-thirds of the left lung and at the extreme right base. The general condition was wonderfully good considering the extent of the inflammatory lesions. Signs of fluid developed in the abdomen and left pleura, and a zone of redness was present about the umbilicus. Some pus escaped through an opening at this point, and forty ounces were evacuated by inserting a tube. The empyema was drained at the same time by excision of a rib. Recovery was complete.

In the peritoneal pus the micrococcus tetragenus alone was found; in the pleural pus it was associated with the pneumococcus.

The case closely resembles one type of pneumococcal peritonitis as described by Broca, and there is a question as to whether the pneumococcus had been present (in the peritonitis) but had perished before the pus found its way out, twenty-three or -four days after the onset.

Burnett, C. H.: Scarlatinous Empyema of the Anterior Superior Squamomastoid Cells. (*The American Journal of the Medical Sciences.* Vol. cxxiii., No. 3.)

A girl of thirteen had had pain and discharge from the left ear almost from the outset of an attack of scarlet fever. The ear had been syringed with peroxid of hydrogen and firmly stuffed with cotton, and this form of treatment the writer looks upon as the chief etiological factor in the production of the consecutive mastoiditis. At the end of the fourth week of the scarlet fever, the child was very pale and weak, and the left cheek was enormously swollen. There was edema of the temporal region; the left eye was closed and the lids were ecchymotic. Just above and a little behind the upper wall of the bony auditory canal there was a prominent, fluctuating point. The mastoid region behind the auricle was devoid of any symptoms. The mem-

brana tympani was red, macerated and perforated. On incising the fluctuating point, three ounces of pus escaped. The large pus cavity in the cheek was drained, but later a more radical operation had to be done, revealing an opening in the surface of the squamomastoid region slightly above and behind the bony external auditory canal. The rest of the mastoid bone was entirely normal. A counter opening was made in the cheek, and recovery began at once. Hearing was normal when the child was discharged.

The expansive power of hydrogen dioxid is so great that it forces some pus inward, and the deeper cavities of the middle ear and the mastoid cells become infected. Empyema in previously normal mastoid cavities consecutive to acute otitis media is not a necessary but an artificially secondary result of improper treatment of the primary acute otitis.

The proper time to syringe or apply lavage to an acutely inflamed, previously normal ear is before the membrane ruptures and discharge sets in, in order to prepare an aseptic surface for the opening of the membrane. After this has occurred there should be no syringing, as it tends to infection and narrowing of the perforation, damming in of pus and consequent infection of deeper middle ear cavities.

Primrose, A.: A Case of Intussusception in a Child; Operation—Recovery. (*The Canadian Practitioner and Review.* Vol. xxvii., No. 3.)

The age of the patient was three and a half years. When first seen the case was of three days' standing. The leading symptoms were absence of stools, vomiting and pain in the abdomen. A sausage-shaped mass could be palpated on the left side. Laparotomy revealed the existence of an intussusception of the transverse colon which was invaginated into the splenic flexure. The intussusception was liberated by a combination of pressure and traction. Contrary to the general maxim, pressure was made directly upon the apex of the mass. The patient made an uneventful recovery.

McKenzie, John: Foreign Body in the Esophagus. (*The British Medical Journal.* No. 2155.)

A girl, aged twelve years, accidentally swallowed some foreign substance which obstructed the esophagus. The X-rays showed that this extraneous body was a coin which had evidently adhered to a piece of cake. All attempts at extraction

with coin-catchers and probangs were futile. The author then sought to engage the coin with laryngeal forceps under the control of the X-rays. Chloroform was first given. The vacuum tube was placed close to the left of the neck. Crocodile laryngeal forceps were now introduced, and the screen was placed close to the right side of the neck. The forceps could now be brought in relation to the coin, which was grasped. Much force was necessary to overcome the impaction. The picture of the coin engaged in the bite of the forceps and slowly withdrawn was most interesting. Recovery was complete.

St. George, G. L.: Two Cases of Spina Bifida Treated Successfully, the First by Injection of Morton's Fluid, and the Second by Excision. (*The Lancet.* No. 4098.)

The use of Morton's fluid is fraught with great danger and should be avoided when excision is possible. In the first case the baby was but seven days old. The tumor was as large as a small orange and represented a spina bifida of the fourth and fifth lumbar vertebræ. It was only partly covered by normal skin, and the exposed membrane was beginning to ulcerate. There was neither paralysis nor distended fontanelles, although the sac was very tense. After puncture of the base of the tumor and evacuation of two-thirds of its contents, Morton's fluid was injected and the sac painted with iodoform collodion. Much short and prolonged high fever followed. The treatment was repeated sixteen days later and the patient ultimately made a complete recovery.

Mauclaire: Osteomyelitis of the Sternum. Initial Hematemesis, Pulsating Mediastinal Abscess. Drainage. Recovery. (*Gaz. des Mal. Infantiles.* Vol. iv., No. 9.)

After an attack of measles a twelve-year-old girl suddenly developed high fever, repeated hematemesis and delirium. Three weeks later a pulsating swelling was noticed over the sternum, on a level with the fifth costal cartilages; it was as large as a mandarin orange, could not be reduced, and no souffle was heard. Very nearly a quart of pus escaped upon incision of the abscess, which was not connected with the pleura nor with the pericardium. The child was in a typhoid state, but gradually recovered. A small fistula remained for nine months and finally an infundibuliform cicatrix, adherent to the sternum, resulted.

It is difficult to determine the exact part which the measles

played in the causation of the osteomyelitis. In every case in which an immature patient develops the typhoidal state without the classical signs of typhoid fever, the entire skeleton should be examined for traces of osteomyelitis.

HYGIENE AND THERAPEUTICS.

Lovett, Robert W.: The Health of School Girls. (*Boston Medical and Surgical Journal.* Vol. cxlvi., No. 15.)

By the test of frequency of error in school work, and also by the ergograph it is abundantly shown that the initial or morning capacity of the school child soon deteriorates. In plain language children are easily fatigued by continuous mental effort. The relative endurance of the sexes varies from year to year, but the girls appear never to gain after puberty, while in boys there is a normal increase up to the age of twenty or thereabout.

Continuing the work along these lines the author shows by statistics that more girls absent themselves from the higher grades by reason of ill-health. One girl in twenty has to give up her school on this account. Replies from teachers appear to show that girls do not improve in health during the final years of school life. "In short, the health of schoolgirls about puberty is far from what we would like to see it."

Wilson, Robert N.: An Analysis of 52 Cases of Tetanus Following Vaccinia. (*Journal of the American Medical Association.* Vol. xxxviii., Nos. 18 and 19.)

The conclusions of the author are in part as follows: The exact time and manner of infection of vaccine wounds by tetanus germs cannot be demonstrated to a certainty. From the fact that such cases often occur in groups, it might be inferred that the vaccine used was at fault. On the other hand, the rarity of this association, the length of the incubation period, the frequency of opportunity for secondary infection and the failure to incriminate the suspected vaccine by animal experiment all combine to show that the vaccine and act of vaccination were not responsible.

The mortality with antitoxin in this series of cases is but slightly lower than that in which the older treatment was given exclusively. In other words, this clinical type of tetanus appears to be specially virulent, the glycerinated lymph and modern shields contributing toward this tendency in some unknown way. Individual susceptibility, too, is undoubtedly a factor of prime

importance. With full prophylactic regimen, including strict asepsis and a possible future substitute for glycerinated lymph and the shield, the occurrence of tetanus after vaccination may be safely imputed to the predestination of an unknown susceptibility, such as occurs under other surgical conditions, as unsuspected hemophilia, causing hemorrhage after careful ligation of arteries.

Turner, Robert: The Treatment of Chorea by Large Doses of Fowler's Solution. (*The British Medical Journal*. No. 2155.)

A boy aged nine years, of nervous disposition and rheumatic family history, was sent home from school because of his choreic movements. For several weeks he sought relief in clinics, but with little benefit. He then came under the care of the author who put him upon large doses of Fowler's solution. The initial dose was 12 minims at meal times. After five days of this medication patient showed symptoms of arsenicism (swelling of eyelids, colic), but his chorea was much improved. The dose was reduced to 5 minims and soon discontinued outright as the disease entirely vanished.

Johnston, Wyatt, and Jones, F. E.: A Simple Method for Bacteriological Examination of Milk Samples. (*The Montreal Medical Journal*. Vol. xxxi., No. 2.)

Instead of the ordinary method of diluting 1 c.c. or less of milk with 500 to 1,000 volumes of sterilized water, a wire loopful of milk is inoculated directly into the melted gelatin. Aluminum wire of No. 25 gauge formed into a loop fitting closely about a knitting needle, size No. 18, furnishes a loop which takes up 1-1000 c.c. of milk with great constancy. The wire loop is furnished sterilized in a corked test-tube, and is placed in a mailing case with a Blake vial containing nutrient gelatin ready for use. For ordinary milk one loopful suffices; for pasteurized milk ten loopfuls are preferable. The development of exclusively spore-bearing bacilli is evidence that the milk has been sterilized. An amount of 20 c.c. of milk suffices for testing for preservatives, fat and total solids, as well as for microscopic examination of the sediment obtained by centrifuging. Freezing must be guarded against in rigorous weather, as this may be a source of error by causing reduction of bacteria. Milk containing any chemical preservative is unfit for use. It may be conceded that 500 colonies per c.c. is about the maximum permissible for pasteurized milk. First-class milk should not contain more than 10,000 bacteria per c.cm. With 10,000 to 100,000, the milk, while not first-class, may still be usable. With 100,000 to 1,000,000, it is in a decidedly poor condition and had better be pasteurized before use. Milk having over 1,000,000 has deteriorated to an extent which makes it objectionable as a food. At temperatures below 40° or 50° F. very little increase of the bacteria occurs.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

JULY, 1902.

[No. 7.

Original Communications.

DEVELOPMENT, THE KEYNOTE OF PEDIATRICS.*

PRESIDENTIAL ADDRESS.

BY W. S. CHRISTOPHER, M.D.,

Chicago.

While thanking my colleagues for the honor they have seen fit to confer upon me in presenting me the presidency of this organization, I wish also to congratulate them upon the line of work in which the Society is engaged, for I am firmly convinced that no other department of medicine has to do with more fundamental biologic truths, has as great possibilities for usefulness, has as much unexplored domain awaiting research, as this department of pediatrics, and I aim here to present the reasons for the faith which is within me.

With the question whether pediatrics is a specialty I have no concern, regarding such discussions as fruitless. But with its relation to general medicine and with its practice and study I am much interested. It is clearly a part of general medicine; this is a matter of definition. But general medicine as it has been taught, and as it has been practiced, has been singularly free from any active interest in the problems of pediatrics. I know of no text-book on so-called general medicine which evinces the slightest conception of the fundamental philosophy of pediatrics. The fact is that that which has posed as general medicine is a very thorough presentation of the special manifestations of the diseases of adult life, with some occasional reference to disease as it shows itself in children, but lacking entirely in any systematic presentation of the forces at work which demand for the diseases of childhood special study, and

* Read before the American Pediatric Society, Boston, May 26, 27, and 28, 1902.

which have such important etiologic relations to adult pathology.

It is certainly true that scarlet fever is in the main the same whether it occur at two years of age or at forty; so is diphtheria; rather greater differences, due to age, are found in typhoid fever. But it is not these differences, the importance of a knowledge of which is not denied, that constitute the framework of pediatrics. Indeed, all the infectious diseases of childhood are only accidentally children's diseases, and are largely dependent upon early opportunity of infection.

I do not wish to be considered as criticising the magnificent work which has been done in general medicine, but only to be considered as calling attention to certain important omissions for which good and sufficient reasons exist.

The one feature which characterizes pediatrics and is its framework is development. But it is enough. One-third of the life of the individual who completes his threescore years and ten is devoted to this period of development. Then comes the long stretch of physical standstill to be followed by the short one of degeneration and decline. Death reaches us as the culmination of the accumulated insults to which the body has been subjected during its career. It occurs when the attacking force equals the resisting force. The physical care of the adult consists in diminishing and relieving the effects of these insults and some warning advice as how best to avoid them. The physical care of the child includes not only as much, but introduces also a positive constructive element. It aims to so control the environment of the developing individual, that the resisting force of the adult shall be made to reach the greatest degree possible. In other words, it aims to make of the given child the strongest possible adult. Pediatrics, therefore, is preventive medicine of the highest order, and is only possible because of the existence of the developmental period of human life, and because this development can be acted upon, and acted upon strongly, by environment, and either advantageously or disadvantageously.

It so happens that of all animals, man has the longest period of development, not only as to the actual time involved (except as to the elephant), but also proportionately as to the total natural duration of life. John Fiske has shown that this long period of plasticity is the factor which has permitted man to

rise so far superior to the other animals. A brief presentation of Fiske's views would seem to be in order, and as I have presented them elsewhere,* I shall here merely quote therefrom:

"The life of the codfish is a simple one. Its acts are mostly concerned with the securing of food and the avoidance of danger. These acts are few in kind and require for their performance only a very slight intelligence. Its experiences, while numerous enough, are so much of a kind that practically they require only the monotonous repetition of the same few acts. So few are these acts and so limited the nervous connections necessary to their proper performance, that they become established by heredity, and the young codfish enters upon its life capable of performing all of them about as well as its ancestors. It has little to learn from experience. It requires no education. It has no infancy.

"Consider, on the other hand, an expert pianist. He acquires the skill to read his music, slowly; he acquires the skill to perform it, stumblingly, but finally he will perform the most difficult music at sight, and do it easily. Slowly has he developed the nervous connections necessary to these acts. They were not developed at birth. Analogous has been the development of the great artist, the great poet, the great warrior, the great mathematician.

"To a less degree, but in the same manner and by similar mechanism, has the mediocre man developed his power to do what he does. Even the lowest man in the race develops after birth his most important voluntary motor functions. The power to do, whether by muscle or by brain, is in man almost exclusively a post-natal acquirement. Between the highest and the lowest animals a great diversity of post-natal acquirement exists. . . .

"The young puppy is quite helpless at birth. But his infancy is short, and he soon crystalizes into an adult dog. Yet short as is the infancy of this species, dog-fanciers have taken advantage of it and by careful training and selection, have developed many interesting varieties of this animal. These men fully recognize that the period of infancy is that of plasticity, for they say, 'It is hard to teach an old dog new tricks.' The acts of the adult animal of this species are so simple that a short in-

* *Chicago Record-Herald's Current Topics Club, May 19, 1901.*

fancy is all that is necessary to gain the experience and adjust the nervous connections required for the performance of the adult acts. . . .

"Wallace relates in his 'Malay Archipelago' his observations of two infant quadrumanæ, which he was fortunate enough to have in his possession at the same time. One was the infant of a hair-lip monkey, *Macacus cynomolgus*, an ordinary animal such as organ-grinders use; and the other was an infant mias or orang-outang, the highest and most intelligent of the man-like apes. He says: 'It was curious to observe the different actions of these two animals, which could not have differed much in age. The mias (orang-outang), like a very young baby, lying on its back quite helpless, rolling lazily from side to side, stretching out all four hands into the air wishing to grasp something, but hardly able to guide its fingers to any definite object, and, when dissatisfied, opening wide its almost toothless mouth, and expressing its wants by a most infantine scream. The little monkey, on the other hand, in constant motion, running and jumping about wherever it pleased, examining everything around it, seizing hold of the smallest objects with the greatest precision, balancing itself on the edge of the box or running up a post, and helping itself to anything eatable that came its way. There could hardly be a greater contrast, and the baby mias looked more baby-like by the comparison.'

"Of the various animals reviewed, it is to be noted that the higher the intelligence of the adult animal, and the more complex its life activities, the longer is its infancy or period of development. Each increase in brain size is accompanied by increase in intelligence, and, generally speaking, this increase in intelligence is accompanied by greater complexity of the life of the individual; that is, there is a greater variety of experiences and a more numerous development of faculties, and hence a greater number of nerve connections to be established to direct and control these faculties and their resulting activities. Finally, there comes a time when the necessary nerve connections can not all be established before birth, but must be partly established by education after birth. Thus is infancy established, for any animal requiring post-natal development, which should happen not to have a period of infancy, would cease to exist. Even in the human family it is far from uncommon to meet instances where both pre-natal and post-natal development are from some

cause or other hindered, and where in consequence the resulting individual would cease to exist, were it not for the fostering care which highly organized society gives him."

Thus it seems that our species has been dependent for its evolution to its present high status upon its prolonged period of plasticity, which has permitted relatively rapid differentiation of offspring from parents. But this refers to phylogeny; we are concerned with ontogeny. Racial development has come to pass through the slow processes of natural selection, but in the development of the individual, intelligent and more direct means can be brought to bear, and the wonderful opportunity is the prolonged plasticity of the species.

To take advantage of this opportunity, inasmuch as development is primarily determined by heredity, it is necessary to know first the course of natural development, and next the pathological conditions resulting from deviations from that course, together with the causes of these deviations. Finally, the environmental factors must be classified, and their influence in maintaining normal development and in permitting and causing deviations therefrom, determined. These aspects have been studied conjointly, and while not so much is known as is desirable, yet there exists a body of knowledge sufficient to make an efficient, constructive pediatrics.

Much work has been done in the mensuration of anatomical features of the body with a view to determining their laws of growth, and it is gratifying, as well as surprising, to find how practical this information is in its application to the management of individual children. The study of development from the anatomical standpoint is at bottom a very simple matter, requiring principally the opportunity. It involves, however, accuracy of measurement and data from large numbers of individuals. Such data can be gathered in part by each one of us, and the collective result be made valuable.

Functional development has not been subjected to so searching an inquiry, except in the case of the nervous system, which presents rare opportunities for quantitative investigation, of which advantage has been taken by the physiologists whose results we would do well to make our own. The functions of the kidneys have been fairly well studied, and through the urine, some attempts, although very inadequate ones, have been made to study developmental metabolism. Of remaining organs,

a knowledge of whose functional development would be most serviceable, the most important are the liver and the ductless glands. However, in view of the insufficiency and uncertainty of present information regarding the specific functions of these organs, it seems too much to hope that the near future will afford any adequate insight into the natural history of the development of these functions. While we are waiting for the physiologists to supply us with this natural history of the development of the functions of the several organs of the body, much can be accomplished by clinical methods of observation. At least four diseases of autotoxic character are to be met with in adult life. These are gout, in all of its numerous manifestations, diabetes mellitus, Grave's disease, and Addison's disease. All of these have their manifestations not only in childhood, but also in infancy. Each represents a certain perversion of the chemism of the body. These perversions of chemism are found much more commonly in the undeveloped infant than in the adult, and it would seem that, in many instances at least, the adult manifestations are but the persistence and amplification of the infantile and perhaps foetal types, and in gout at least, there is distinct reversion to functions of lower forms of life. Moreover in the infant these perversions of chemism are found intimately intermixed, but generally as development goes on, separation occurs, and it is unusual to find more than one form persisting in the adult. Possibly, also, death has eliminated some of the individuals who have been most heavily handicapped. This is the chemical analogy of Cohnheim's anatomical theory. It is in these conditions of perverted chemism of infancy that we find many of the difficulties of infant feeding. It is to them that we must attribute such phenomena as the toxicity of milk in every form to some infants; the toxicity of raw milk and the healthfulness of boiled or condensed milk to others; the utility of beef juice at so early an age as two weeks to some babies, and its toxicity to others for so long as the first three years of life. It is to the type of chemism that we must look for our explanation of the tendencies of infants and children to various degrees of obesity, and for the existence in them of such varying assimilative factors. It is perverted chemism, with its frequent resulting autotoxemia, which we must consider in many of the skin diseases of children, in their anemias, in their tendencies to recurrence to certain forms of disorder. In short it is the type

of chemistry of the body which determines the diatheses. And all these are but features of development.

Of the environmental factors concerned in the life of the child, nutrition and infection stand preeminent, with its physical and mental activities making a close second. Rather less important is the means of protection from the elements, including clothing, dwelling, and climate and other geographical considerations. By no means to be omitted is the matter of discipline. Nutrition is a very comprehensive term. Not only does it include the matter of food stuffs, their digestion, absorption and assimilation, but also such profound considerations as the nature of the normal constructive metabolism, the nature and causes of hyperconstructive metabolism, and destructive metabolism, together with the numerous autotoxemias of infancy and childhood. Of the relations of nutrition to infections, only the most superficial knowledge is yet at hand. How desirable it would be to know the nutritional factors which determine the overwhelming frequency of scarlet fever in the second two years of life.

But even a superficial consideration of these environmental factors would lead farther than would be profitable on such an occasion, and I close this portion of my address, offering the Society for a motto John Fiske's saying: "It is babyhood that has made man what he is."

I beg now to call the attention of the Society to two matters which I feel that I have the privilege of presenting. There is a movement on foot to induce the Federal Government to establish at Washington, in the Department of the Interior, a laboratory for the study of criminal, pauper, and defective classes. Such a laboratory must collect, and indeed it is one of its avowed intentions to collect, much data bearing upon the development of the child. We are asked to favor the movement, and I strongly recommend the passage of a suitable resolution to that end.

It is certain that the Society is desirous of attaining as high a degree of usefulness as possible, and to that end to extend its influence as far as possible to the furtherance of the study of pediatrics. It owes this high duty to itself and to the profession. As an organization, it is necessarily judged by its collective work as given in the bound volumes of its Transactions. It is therefore necessary that every proper effort should be made to secure from

members their best productions for the Transactions of the Society. While the bound volumes of the Transactions must ultimately determine the standing and influence of the Society as a whole, they do not present a good field for the general distribution of the Society's work and this must be sought by preliminary publication in regular journals. In the selection of the journal for original publication, the widest freedom should be allowed to the individual member. The present plan of publishing all papers read before the Society in one journal of the Society's selection, has a distinct tendency to keep away such papers as members may wish to publish elsewhere, and thus deprive the Transactions of some of the members' work. Others indeed may read their papers before the Society, and then deliberately violate the rule of the Society as to place of publication, in this way again depriving the Transactions of matter which belongs to them. I confess myself a sinner of this latter type. In every way we look at it we find the present arrangement is one which tends very directly to diminishing the value of our Transactions and thus diminishing the influence of the Society. I therefore recommend that the Society undertake the publication of its own Transactions.

A Contribution to the Therapeutics of Sydenham's Chorea.—By Dr. R. Jemma (*Gazzetta deg. Osped. e del. Clin.*, Dec. 1, 1901). During the past year Bozzolo has tried lumbar puncture in cases of chorea in which all medication had been found of no avail. The author used this method as a therapeutic measure in two children with severe chorea, and concludes that lumbar puncture is of benefit in these cases. Nearly all the choreic symptoms disappeared almost immediately after the rachicentesis, and those which still remained became milder in degree. Lumbar puncture, therefore, calms the choreic movements for a more or less prolonged period, and arrests the graver phenomena of the severe types of chorea. The author, however, continued the administration of considerable doses of arsenic during the treatment, and advises that this be done to increase the chances of cure. The pathogenesis of chorea being obscure as yet, it is impossible to give a satisfactory explanation of the mechanism of lumbar puncture in this disease. Probably as in other diseases, it acts by diminishing the intracranial pressure.—*New York Medical Journal.*

INTUSSUSCEPTION—CLINICAL REMARKS.*

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WITH SURGICAL COMMENTS.

BY JOHN F. ERDMANN, M.D.,

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An early recognition of the lesion and a knowledge of the proper limitations of the methods by injections or inflation, are essential to the successful treatment of acute intussusception. The case reported below brings out strongly many interesting features and will serve as a text for further remarks.

HISTORY.—F. H., male, eight and one-half months of age, weight, nineteen pounds, general health good, was vaccinated about ten days previously. He was partly breast fed; several times daily he received small quantities of cow's milk boiled and diluted with cereal decoction; once daily a few ounces of broth; orange juice occasionally. No history of trauma or "dancing the baby."

March 21st.—He was taken with a sharp attack of diarrhea (seven stools in twenty-four hours containing undigested casein and some mucus, consistency rather soft). The intestinal disturbance was not attended with vomiting nor did the infant appear to suffer from any pain or discomfort, as he continued to be lively and playful.

March 22d, 8 A.M.—He had a large liquid stool, painless, coming with a gush, showing increased and vigorous peristalsis. At 10 A.M., was given his usual bath, nothing abnormal noticed in his disposition or looks, for he splashed and played as usual. Taken out in his carriage about 11.15, he quickly became restless, uneasy and fretful. This was unusual, as he generally slept when taken out for an airing. The restlessness increased so he was taken home. No vomiting or further stool. At 12.30 he received an enema of warm salt water, this was followed

* Read before the American Pediatric Society, Boston, May 26, 27, and 28, 1902.

by a small undigested stool with the escape of considerable gas. He then fell asleep to awake about 1.45 P.M. with severe abdominal pains, colicky in character, recurring in paroxysms of five to twenty minutes, with periods of rest in the intervals. Nausea followed by vomiting set in about two o'clock. At first the contents of the stomach were vomited, later thick tenacious mucus somewhat stained with bile appeared. The vomiting was projectile in character; the antiperistaltic movements distressing and painful. He would not nurse and was very restless. When seen again at 4 P.M., had just vomited a thick tenacious mucus with a faint odor of sulphureted hydrogen. Expression of face changed. Evidently severely ill, the child presented an anxious appearance with pallor of surface and muscular relaxation; marked restlessness noted. No decided collapse. Vomited incessantly, each attempt distressing in the extreme.

PHYSICAL EXAMINATION revealed a soft, relaxed and somewhat retracted abdomen. On palpation a slight swelling or rather fulness was appreciated in the region of the transverse colon. The paroxysms of pain recurred with increasing frequency and the antiperistaltic movements of the stomach were distinctly visible through the abdominal walls when the child was exposed. No action of the bowels since the enema was given five hours previously. No tenesmus. A high rectal injection was now given, the hips being elevated. As the water escaped a bloody and mucous discharge amounting to about half an ounce, resembling red currant jelly, followed.

This was a positive confirmation of the existence of an acute intussusception. Drs. J. F. Erdmann and H. M. Silver were now requested to see the case in consultation, reaching the patient about 5.20 P.M. A rectal examination by Dr. Erdmann failed to reveal a tumor, nor could the fulness referred to above be made out at this examination. The case being an early one, it was concluded to make an attempt to reduce the intussusception by means of hydrostatic pressure with gentle manipulations of the abdomen under chloroform, and if unsuccessful to operate at once. Under narcosis, an elongated tumor could be distinctly seen occupying the position of the transverse colon.

A pressure of about five feet with gentle abdominal manipulations by Dr. Silver, succeeded in causing a reduction or rather

disappearance of the tumor. After the escape of the water no localized swelling could be detected upon careful palpation of the abdomen. Within a few moments, considerable mucus with numerous specks of blood appeared on the diaper. A detailed consideration of the case lead us to believe that only a partial reduction had taken place. In a number of successful cases of reduction by injection in my own experience, a fecal passage invariably followed the relief of the obstruction. In our case, in the absence of a fecal discharge, we were left in doubt. It was therefore thought best to perform an abdominal section, to clear up the case rather than to wait for further, perhaps unfavorable, symptoms.

THE OPERATION, including the removal of the appendix, for reasons given below, did not take longer than twelve minutes. Vomiting persisted until the following afternoon. During the night some offensive gas escaped. Twenty hours after the operation a liquid offensive stool with considerable foul smelling gas, was passed. The child was kept quiet with small doses of morphia and later on camphorated tincture of opium was administered. From this time on, with the exception of some temperature due to the secondary enteritis, and which latter gradually abated in about two weeks, no untoward symptom arose. The dressings were changed at the end of a week, the wound found to have healed primarily, and the sutures removed. An adhesive plaster dressing and flat gauze pad were continued for several weeks to prevent any yielding of the cicatrix. Up to the present the child is improving and no unpleasant manifestations have appeared.

Before taking up Dr. Erdmann's discussion of the surgical aspect, it may be well to review the points in our case. To recapitulate, an infant in apparent good health after a short attack of diarrhea becomes restless and refuses to nurse. Is seized with recurring abdominal pains, paroxysmal in character, followed shortly by vomiting, the attacks increasing in frequency, becoming more and more distressing. The face becomes pale, assumes an anxious look, the eyes sunken. No decided collapse. A sense of fulness is noticed over the transverse colon upon palpation of the abdomen, though a distinct "elongated tumor" cannot be made out until chloroform is given an hour later. Bloody discharge observed after a high rectal enema. No rectal tumor discoverable.

Edmund Owen (*British Medical Journal*, September 7, 1901) gives the following summary of the symptoms of this lesion. (1) Sudden abdominal pain; (2) vomiting; (3) the passage with much straining of a stool containing mucus, blood and scanty liquid feces; (4) the presence of a tumor in the region of the ascending colon.

One or more of the symptoms characteristic of the disease may be absent or may not appear until late. In the discussion we must consider two factors; First, the character of the attack, whether acute, subacute or chronic, and second, the seat of the lesion, whether "enteric," ileocecal or colic. The urgency of the symptoms will depend upon the situation and the degree of the obstruction or strangulation. The more acute the case, the more outspoken are the symptoms and the greater the danger. In the subacute and chronic cases the prognosis is better and the symptoms are of a milder type.

The site of the invagination will influence the picture. The higher up the lesion the more marked are the gastric symptoms and pain. In the "enteric" variety, the least frequent form in children, a palpable tumor is the exception. The usual variety is the ileocecal, and our remarks are confined to this class.

Pain is a constant symptom; in fact it has been well said, "the characteristic colic of intussusception is a diagnostic sign of the greatest importance and it is from a recognition of its peculiar features that earlier diagnosis and earlier treatment is to be hoped." Sudden in its onset, of great intensity and attended with screaming spells and other evidences of acute suffering, it is, moreover, paroxysmal in character with shorter or longer intervals of relief. English authorities suggest that in every case of acute colic in infancy, the question of intussusception should be considered, and the examination be directed to its discovery.

Vomiting sets in early. It is persistent, uncontrollable and often projectile in character. The antiperistaltic movements of the stomach are plainly evident when the abdomen is exposed for inspection. At first the contents of the stomach are rejected, sooner or later, depending upon the acuteness of the case, it becomes bilious in character. Fecal vomiting is a rare event in infants. If the lesion be high up in the small intestine (enteric variety) a grumous material may be vomited, as occurred in a case observed quite recently.

The character of the rectal discharge is important. In acute cases, when invagination has occurred, the pressure upon the mesentery involved produces venous obstruction, thereby giving rise to edema and extravasation of blood in the intussusceptum, and even hemorrhage from the mucous membrane implicated in the process. At the outset one or more fecal movements are observed, followed by clear blood or bloody mucus resembling red currant jelly, the latter occurring particularly after a paroxysm of pain. This is characteristic, for, with the exception of twists and knots, no other form of obstruction is accompanied by such evacuations. In dysentery and rectal polypi the history is different.

Traumatism from the unskilled use of a hard nozzle in administering injections or in consequence of sudden unexpected movements on the part of the child may cause blood to appear. Now and then hard fecal masses will act in the same way. In scurvy and purpura blood may escape from the rectum, but the presence of other signs will clear up the case. Recently, for a few hours, some doubt existed in the case of a small boy who had severe abdominal pains with bloody discharges, and who at the same time had pains in various joints. A high rectal injection with thin starch water and the internal use of codein and sodium salicylate, after a few doses, cleared up the diagnosis. As the case progresses the color becomes darker, clots may pass and tenesmus appears. The rectal mucous membrane is everted through the relaxed sphincter. Finally, the tumor may be present at the anal orifice. Not infrequently after twenty-four hours, and at times earlier, the bloody and mucous discharges have a decided gangrenous odor.

Even before the appearance of a tumor, a rectal examination may be followed by a characteristic bloody flow. In the beginning the abdomen is soft, relaxed and possibly somewhat retracted. Palpation is not difficult. There may be a sense of resistance or slight fulness in the right iliac fossa without tenderness. As the case progresses a lump is felt. Eventually the characteristic "sausage-shaped mass," which becomes more pronounced during the colicky attacks, can be made out along the transverse colon. In some cases the tumor can be felt per rectum as early as ten to twelve hours from the onset of the symptoms.

Conjoined abdominal and rectal exploration, preferably

under narcosis, may reveal a tumor not discoverable by simpler means.

In the case reported a prominent and early sign was the change in the general condition and facial expression. The extremities were cool, the face pallid, eyes sunken and extreme restlessness with muscular relaxation was noted. The degree of collapse varies. In some cases it is pronounced, the temperature may be subnormal, pulse accelerated and weak, etc. Profuse cold perspiration may be a prominent symptom.

My remarks have been limited to a consideration of the early signs. Later on sepsis, peritonitis (local or general) or gangrene change the picture and render the prognosis more dangerous.

In several articles upon this topic, we are told that spontaneous reduction is possible.

In proof of this instances are cited of attacks of sudden paroxysmal pain, accompanied by stools containing blood and mucus, the attacks disappearing suddenly, enteritis continuing for a few days. Such a result cannot be expected in many instances. First, the swelling of the apex of the invaginated portions renders this mechanically impossible; secondly, the peristaltic efforts of the intussusciens are in an outward direction. Finally, in consequence of the lateral traction of the mesentery, the axis of the intussuscepted portion no longer corresponds with that of the intestines, thus the condition becomes more complicated and reduction is more and more difficult.

Injections and operative measures are rival methods of treatment. Each plan has its advocates. Progressive surgeons, particularly in hospital practice, favor early abdominal section. Injections, and under the term are included inflation of the bowels with air or distension by hydrostatic pressure (the latter considered safer), have been advised. First, for the purpose of reducing the invagination; second, with the object of lessening the size of the tumor and thereby limiting the field and simplifying the subsequent operation. Finally, in occasional cases the sufferings of the patient are lessened by the use of an enema prior to operation. At present the tendency is to limit the employment of injections to the early stages, that is, not later than twelve to twenty-four hours from the onset of the symptoms. It is recognized that the longer the condition has existed, the greater the dangers of pressure from within. If not successful

immediately, further attempts ought to be given up and abdominal section resorted to without delay.

Edmund Owen is very emphatic in his denunciations and writes as follows: "I deem it nothing less than a calamity that physicians every now and then manage to chase back an intussuscepted piece of bowel by using an enema."

Whether inflation by air or hydrostatic pressure be preferred, the following objections or disadvantages are apparent: First, it is impossible to gauge the amount of pressure. Second, except in the earliest cases it is not possible to exclude beginning gangrene, which, as shown by the results of operation, may take place very early. Third, the reduction is not always complete. The tumor may disappear, the symptoms abate, to recur again in a few hours. We therefore cannot be positive that with the reduction of the swelling, the entire mass has been reduced. There is always an element of doubt, consequently the procedure has been termed uncertain and dangerous, haphazard and therefore unscientific.

When disinvagination has been successful the relief is immediate. The anxious pallid look disappears and with it the evidences of collapse. The abdomen assumes a normal contour. In several instances in my own experience, fecal movements with the escape of gas, followed closely upon reduction. Now and then a rumbling noise is a favorable sign. Relapses are not uncommon.

As to subsequent treatment, the patient should be kept absolutely quiet with opium and an abdominal bandage, just tight enough to steady the bowels, must be applied.

A word as to the method of employing injections. They may be given with or without anesthesia. Though the former is preferable, the latter has this advantage, if the reduction is successful, the change in the expression of the face and relief of symptoms, are noticed at once in a child not under the influence of chloroform. The patient becomes quiet at once, takes food easily and soon goes to sleep.

The following simple plan, advocated by Jacobi, may be followed: "The baby is turned on its belly, the hips are raised, the abdomen gently supported by a soft pillow. The mouth and nose, being the lowest part of the body, must be protected. The baby is then anesthetized with chloroform, and warm water is poured into the rectum with but little pressure, not from a

height of 'fourteen feet.' This is important, for the intestine is no iron pipe, subject to the laws of hydrostatics only. The injection is frequently intermittent, while the anus is closed by the finger. At the same time the abdomen, in the direction from below upward, is gently kneaded and its contents moved about."

SURGICAL COMMENTS.

Very naturally the paramount question to be answered, when the surgeon is called, is that of the ultimate outcome, particularly is this so when the cases operated upon are in the very young.

In a paper, "Intussusception, with a Report of Three Additional Operative Cases," read before the Orange Mountain Medical Society, October, 1901 (*New York Medical Record*, 1902), this subject was covered quite thoroughly, and I gave in addition an abstract of all my previously operated cases. Since this paper was read I have operated upon six additional cases including the one reported above. From a study of these cases I feel that I am in the position of one who can safely say that the operation for intussusception is accompanied by far less a mortality rate than that which occurs when hydrostatic pressure, inflation, etc., are practiced, and I am positive that surgical interference is the only treatment when a case has passed the twelve hour period of duration.

Unfortunately for all the rate of mortality rapidly increases for every added twelve hours and after the third day the rate of recovery is so small that one is discouraged when considering it in the surgical sense. I make it a rule when called to see a case of twelve hours' duration and over not to use enemata, etc., but to request the privilege of operating, as in all these cases the surgeon is only called after all mechanical methods for reduction have been practiced; furthermore, after a period of three to six hours' duration the congestion and edema may be sufficient, as a result of strangulation, to prevent any reduction even by surgical manipulations.

In several cases operated upon by me in which lacerations or ruptures of the serous coat have been found it has seemed to me that this condition was due to hyperdistention of the bowel

by water or air rather than to the distention of the gut by the intussusception. The shock present in very many of these cases is not a contraindication to operation but calls for more rapid work in reduction by surgical means. After the operation the child recovers rapidly from the shock and either passes into a comfortable sleep or upon awakening from the anesthetic presents the picture of an apparently healthy child.

The operation is an extremely simple one, requiring asepsis and expedition more than anything else during the first twenty-four hours, and rarely, except in the long standing cases, is excision of the gut required. After the first twenty-four hours one is apt to meet with tears in the serosa, adhesions between the entering and the entered gut, preventing easy reduction, and finally, gangrene (either localized in spots or of considerable extent) calling for the various procedures allowable under the physical conditions found.

The position of the incision depends to a degree upon the presence of the tumor, *i.e.*, should a tumor be found in the region occupied by the descending colon or sigmoid, then a left rectus incision is far better for the proper manipulation of the gut, although I rarely find it necessary to open except through the right rectus.

This latter region is the one I usually select whether a tumor be present or not for the reason that the final portion of gut to be reduced is usually in the ileocecal region. Furthermore, all ordinary manipulations in any part of the abdomen can take place through an enlargement of this incision. The recti are selected in preference to the median line for the usual surgical reason of preventing herniation.

Personally I have never found it necessary to stitch the gut, or mesentery, or mesocolon, to the parietes for the usually ascribed cause of long lax mesentery or mesocolon. I have always felt that sufficient temporary adhesions would form as a result of the congestion and edema of the gut that is finally extruded from the intussusciens.

In the case reported by Dr. Huber, several surgical points of interest were noted. Upon cessation of the use of the injections the abdomen was distended, evidently by some water remaining, to such a degree as to render positive palpation useless. The child's condition of semishock still obtaining to a degree, no feces nor flatus being passed, it was decided to again anesthetize the patient and do a laparotomy.

Under chloroform anesthesia a vague sense of tumefaction was observed upon palpation in the right iliac region and, as recommended above, I incised in the right rectus, practically in the position of an incision for appendicitis.

The palpating finger readily found a mass in the lumbar-iliac region, which was with little difficulty delivered through the abdominal incision. This mass was found to consist of about two inches of the ileum, the cecum and the appendix being still intussuscepted, and to its proximal side near the ileocecal valve, a mesenteric lymph node about $1 \times \frac{1}{2} \times \frac{1}{2}$ inches deeply congested, attracted immediate attention. Upon reducing the intussusception the appendix was noted as being thickened, intensely congested (almost black) and covered with some lymph flakes. Appendicectomy was deemed advisable and was done.

No sutures were made to the parietes of the gut or mesentery. The abdominal incision was closed in layers, with the final result as reported by Dr. Huber. The involvement of the lymph node was evidently only of recent date due in a measure to the obstruction of circulation and possibly to the result of a mild infection from its contiguity to the involved area. This condition has been before observed by me in instances of strangulated hernia and simple appendicular cases.

In reducing the condition two things for success must be remembered.

First, never pull the proximal end with the idea that reduction will be accomplished. This type of manipulation is more productive of tears of the coats of the intestines than it is of producing the end desired. Second, and the most important point to remember, is that reduction is only produced by pressure upon the apex of the mass through the gut at the distal extremity, gently guiding the proximal end. Should adhesions between the entering and the receiving gut prevent the reduction, then the passing of a blunt instrument between these portions is usually attended by success.

Recovery can be assured in most cases of less than one day's standing; in cases of two days and more than one the majority recover; in cases of over two and up to three days a fair percentage recover, while in cases of over three days the prognosis is bad.

So far as I can recall from the literature to date, no case of excision of intestines in these cases in children under one year

has been successful. We may add that the mortality in all cases is from 20 to 50 per cent.

With these facts staring us in the face, the mortality rate can be greatly reduced if clinicians will look upon these cases as distinctly surgical in character. We should not temporize any longer but strongly advise and insist upon immediate surgical interference if injections carefully tried are not productive of immediate positive results in the early cases, that is, in those of less than twelve hours' duration.

Hydrostatic pressure or inflation by air should not be used in any case of over twelve hours' duration.

DISCUSSION.

DR. CAILLÉ.—For the clinician there are three main points of interest connected with this subject. First, the possibility of early diagnosis; second, the possibility of overcoming the obstruction by nonoperative means; and, third, the possibility of locating the site of the intussusception and thus aiding the surgeon. The diagnosis is easy in advanced cases, but very difficult when you see a case at the outset, and, I dare say that general rules cannot be laid down to guide us; each case must be judged on its merits. Dr. Huber is to be congratulated on his success in the early diagnosis of this condition, particularly as the patient was his own child and probably owes its life to his early recognition of a grave malady.

Regarding the second point, the possibility of overcoming the obstruction by nonoperative means, I would like to say that I have had most success in reducing intussusception by means of oil injections—the child being almost in an inverted position. I inject warm oil and gently manipulate the abdomen.

Regarding the third point, the possibility of locating the intussusception, that is of considerable importance because the surgeon is not going to open in the median line if he knows that the intussusception is located laterally. Some fifteen years ago I drew attention to the following percussion phenomenon in intussusception: If you percuss the abdomen in intussusception, before the tumor can be made out and before the abdomen is highly tympanitic, you will generally find at the site of the constriction a *very tympanitic area* adjoining a dull area, and, in my experience this point, when found, will be the proper site for opening the abdomen.

DR. PACKARD.—One point in Dr. Huber's report was of special interest to me. This was his mention of the presence of the large lymph node in the intussusception. Three or four years ago Dr. Le Conte operated for me upon a case of intussus-

ception of six days' duration. It was found impossible on opening the abdomen to reduce the intussusception because of the existence of just such an enlarged lymph node close to the junction of the ileum and cecum. When we think of the proximity of the mesenteric lymph nodes to the intestine it is easy to see how even several of these might be drawn to the intussuscipiens and when swollen might seriously interfere with complete reduction.

DR. JACOBI.—Has any member of this society ever seen a perforation occurring after injection when the intestine was in a normal condition—when it was healthy? I should say no, for the reason that I have seen perforations in such cases only when at least the adventitia of the intestine was abnormal. In every one there was a previous history of diarrheas, sometimes constipation and diarrhea alternating, occurring months and sometimes years before the intussusception. There was thickening and discoloration of the adventitia corresponding with the perforations, and, therefore I think the question justified—whether the gentlemen have seen perforations in such cases where the intestines were perfectly normal?

In that connection it would be well to remember that in a good many of our cases of early enteritis, in its different forms, we have as a result a local, and sometimes fairly general peritonitis, that will show itself in after life in thickening and changes in the walls with tendency to perforation. In many cases of perforation from alleged unknown causes a local peritonitis will be found that has made the walls more friable.

DR. PUTNAM.—Dr. Jacobi has said that ruptures do not occur in a healthy intestine, but I should like to ask if rupture is not extremely rare even with any kind of an intestine? Can anyone mention such an accident? While these cases ought to be operated on, sometimes they cannot be operated on, and then, I think, pressure ought to be used to reduce them.

DR. GRIFFITH.—I would like to know how much importance Dr. Huber places upon the presence of intense pain in these cases; whether or not he considers it an essential. My own experience in some of these cases has been that one could be readily deceived by the absence of pain. I can recall at least two children who suffered no more pain than one would expect in the ordinary straining which frequently attends diarrhea of an inflammatory nature. There was no outcry at all. The diagnosis had to depend entirely upon the presence of the tumor and the bloody movements. Of course, the taking away of any one such important symptom increases the difficulty of recognizing the condition, and yet I feel that we would make a mistake in claiming that intestinal obstruction must be attended by intense pain.

I wish to call attention to the existence of recurrent, or cy-

clic, vomiting as a condition which may readily be confounded with intestinal obstruction. Of course, where there have been previously repeated attacks of this nature, the diagnosis is easy, but with the first attack it is sometimes extremely difficult. I can recall one case in which the presence of intestinal obstruction was very greatly suspected by the physician in charge. The absolute constipation, the collapse, the repeated uncontrollable vomiting, so characteristic of recurrent vomiting, are equally well seen in obstruction.

DR. CHAPIN.—It is sometimes difficult to make a diagnosis between gastritis of a severe type and an intussusception in a baby. I reported a case some years ago that I had seen in consultation. A little girl, five years old, had intense vomiting that became stercoraceous. She had great pain and the pinched expression. No tumor was made out, but there was ballooning of the rectum. We washed out the bowel—she had at first been given laxatives which had not operated. The case looked so much like obstruction that I called in a surgeon who advised operation, which was declined. The patient died, and, at the autopsy, we found an extreme condition of gastritis but no obstruction; there had been constipation because the child had nothing in the bowel. The whole picture looked to us like obstruction, and yet it was nothing but an acute gastritis.

DR. JACOBI.—Dr. Putnam says cases of perforation are very rare. I should say they are rare, but not unheard of.

In regard to the method of making injections I cannot accept the suggestion that increased pressure will accomplish more than gentle pressure. The intestine is not an iron tube and hydrostatic laws are not applicable. It is gentle dilatation of the intestinal wall around the part of the impacted mass that we want, and therefore irrigation with moderate pressure and manipulation under chloroform will accomplish very much more than increased pressure. Gentle dilatation is the best means of securing reduction. I remember that a physician in New York recommended that pressure should be made by having the column of water at a height of fourteen feet and that the bag should be taken up stairs to exactly fourteen feet, the height which he calculated arithmetically to be correct. Now I do not believe that is the correct thing for we have to deal with tissues that will dilate, the matter cannot be subjected to arithmetical calculation. I think the effect is better when the irrigation is slow and when the irrigator is kept at a height of only one or two feet so that the dilatation takes place very gradually.

DR. ADAMS.—I think a great deal depends, as has been said, upon making the diagnosis of a tumor. In the past eighteen months I have seen several cases of intussusception, all in children under nine months of age.

The first case was the infant of a physician who had treated

the case during the night and who had practically made the diagnosis. The child was in a state of coma from opium and I was called for that more than for anything else. The narcosis was produced by a small dose of the deodorized tincture given by the rectum. Within a few hours I was able to make a diagnosis of intussusception which I located at the hepatic flexure of the colon. I insisted upon an operation, and about six inches of the colon was found intussuscepted. The child recovered and is now strong.

The second case was one in which the diagnosis had been made and I was called in consultation. I had no hesitancy in confirming the diagnosis, nor was there any difficulty in locating the tumor in about the same position—the hepatic flexure. Here there were no symptoms of obstruction. In the first case there were straining and crying, but in this one there were not, and in fact the child was crawling around on the floor when I went into the room. The family refused to have an operation and I left the case. Another physician was called who said there was obstruction but that he had been called too late or he could have stopped it without an operation. A surgeon was brought in the next day but he would not operate as the child was too far gone. A necropsy was permitted and it was found that about ten inches of intestine was intussuscepted and in a gangrenous condition. The surgeon said he doubted if operation would have been of any benefit even when I saw the child.

The last case was one occurring in a child three or four months of age, a perfectly healthy baby. It had an attack of intestinal trouble and was given a dose of castor oil by the mother. After that the child would strain, cry and break out in a profuse sweat, without the escape of mucus or anything else. I made a diagnosis of intussusception and tried the irrigation as spoken of by Dr. Jacobi—and that is the method I generally use, with the injection from a height of about one foot. I agree with him that you can get better results in that way. If you exert more pressure the contractile power of the gut is set up and you cannot force in as much water to produce dilatation. Now in this instance with one injection the gut was relieved, but two months afterward I was sent for to see the child in the same condition. I did not locate a tumor at the first attack, but later found the gut almost protruding from the anus and with my finger pushed it up and could feel it recede from the finger. I used a slow injection. The child recovered and has never had any return of the trouble.

My observation has been, so far as surgical procedures are concerned, that there are two classes of physicians—those who want to operate as soon as they see a case, and those who are more conservative and want to wait and see what the chances are. I think the practitioner is competent to make the diagnosis and when he makes it he is ready for operation if the family

will consent to it, but we cannot always operate. The parents have something to say about it and often they will not permit an operation, so that we cannot always get the good results we would like when we know that an operation is the only thing. We must judge the case as it appears to us and I do not think the surgeon can lay down any rules that will guide us. We occasionally meet with a case in which none of the prominent symptoms are present.

DR. PUTNAM.—While I believe laparotomy to be the proper treatment for such cases, still, if injections are to be used at all, I cannot see how they can be of any great use without a plug to close up the anus, thus enabling one to make pressure. At another meeting I should like to show an elastic plug which is kept distended by the pressure of the water itself.

I should not be willing to think that there was nothing more to be done for a case when a small pressure of water would not relieve it and when I could not have an operation done. I saw a case many years ago when an operation would have been an alarming thing to propose. The child was nine months old and had been in that condition under the care of several physicians for two days. I tried for a great while to reduce the intussusception with injections from the ordinary height, but without the least effect and I should have had to go away and leave the child in that condition if I had not decided that it was better to run the risk of pressure. The bag was hung on the edge of the door, which makes about seven feet, and in a short time the tumor disappeared and the child was apparently cured. It was more comfortable and went to sleep, but in the morning the symptoms came on again and the tumor was again felt and I did the same thing over again. On the second occasion it took but a very short time with this pressure to reduce the tumor. So I should be very sorry not to have tried the higher irrigation. I think there is less danger than is generally supposed of rupturing the intestine because the abdominal walls act a good deal as the net bag around the thin rubber bulb of the atomizer, or cautery, which prevents a very thin bag from breaking whereas if that netting were not surrounding it the bag would become over-distended and burst.

DR. ADAMS.—You had not as much pressure I expect as you would lead us to believe. You had not a height of seven feet because you had the child elevated and the bag hanging below the top of the door.

DR. CHRISTOPHER.—I should like to relate an observation that Dr. Henrotin made on one of my patients. The child was a boy four months old taken with the intussusception at nine o'clock in the morning. There was no pain, nor tumor, but

marked depression, and in the afternoon about two o'clock a little bloody discharge from the bowel. At six o'clock the abdomen was opened and the intussusception found. With the intussusception in sight we attempted to reduce it by introducing water into the bowel. We allowed the pressure to rise as high as we thought safe. It dilated the colon considerably without the least evidence of any reduction. Of course the conditions were not exactly the same as when the abdomen is closed, but we wanted to see, directly, the effect of pressure from within. It was completely negative. After this attempt the intussusception was reduced with the greatest ease by simply pulling the bowels apart. There were no adhesions. Three months later the child had intussusception again. This time the mother made the diagnosis and in nine hours we again opened the abdomen and reduced it, as readily as the first time, and with favorable result.

DR. BLACKADER.—Speaking as a physician, I think it would be a pity to have it go forth as the opinion of this Society that this condition may be treated by repeated injections, and that operation by the surgeon may be deferred. In my own opinion, the safety of the child depends upon prompt recognition of the intussusception and prompt operation. The cases in which injections succeed are very few and time is so important. I fully agree with what Dr. Huber says, that every hour counts. Treatment of this condition by the introduction of either water or air into the bowel is a method upon which little reliance can be placed.

DR. ROTCH.—The Society has already discussed this subject in Cincinnati, and the opinion of the Society then was just what Dr. Blackader states, namely, that the operative treatment in intussusception is the best. It is merely a matter of chance whether an intussusception is reduced by irrigation or not. If you examine a large number of specimens in the museums, you will see a vast difference in the relations of the different parts of the intestines to each other. Where they are in line and you can bring direct pressure to bear upon them as you would on the inverted finger of a glove, the intussusception may be reduced in this way. Often, however, the parts are not in line and then the more pressure you exert with the fluid the greater you make the obstruction. It is absolutely contraindicated in such cases and it is mere chance whether the case is of this class or not. Exploratory laparotomies in children are now done in such a way that we do not hesitate in most cases to make use of this method for the purpose of diagnosis and there is no question that the best authorities all over the world are upholding the surgical treatment of these cases. If you suspect intussusception it is perfectly harmless to use gentle dilatation, which will be of more service, in all probability, than greater

pressure because with gentle dilatation you may reduce a kink in the intestine where with greater pressure you would make it worse. Of course, we have all had cases reduced by dilatation when seen in the early hours of the accident, before adhesions have formed. These are the successful cases. We should not wait, but as soon as we have tried the dilatation and have found that it is not successful, an exploratory laparotomy should be done at once. I think that this was formerly the opinion of the Society and I trust that it will continue to be.

DR. HUBER.—In addition to the lateral traction of the mesentery which disturbs the relation of the parts of intestine, spoken of by Dr. Rotch, there is another factor, and that is the rapid swelling of the intussuscepted portion. This proved to be the main difficulty in the case I report. Most of the cases we see are of the ileocecal variety, as statistics show. I can confirm the difficulty of differentiating between cyclical vomiting and early intussusception, unless you are familiar with the previous history of the case.

As regards the early symptoms they depend upon whether the case is acute, subacute, or chronic. My paper dealt with acute cases, which are the cases of greatest danger. The others give you time to make a diagnosis and there is not the same danger of strangulation, which is the chief element of mortality in the former class. When the case is acute the symptoms are due to strangulation and you will have the pain, vomiting, change in expression and bloody or currant-jelly discharge early.

As regards the presence of the lymph node, the enlargement was produced in part by interference with the circulation, and in part due to a mild toxemia induced by the intestinal lesion.

Chlorosis in Boys.—Monari, having recently observed 2 cases of chlorosis in boys, he reports them (*Gazzetta deg. Osped. e del. Clin.*, Jan. 26, 1902) so as to bring further proof against the idea that chlorosis can only occur in girls. The first case was that of a boy, aged sixteen, who presented a well-marked chlorotic face, pulsations at the base of the neck, and a pronounced venous hum, as well as a slight soft murmur over the pulmonary area. The blood was typical of chlorosis, the hemoglobin being 40, the red cells 3,583,000, and the white cells 6,100. Under appropriate treatment the blood was brought to its normal condition and the other symptoms disappeared. The second patient was a boy of thirteen, who had 5,370,000 red cells, 12,400 white cells, hemoglobin 65, and the subjective and objective signs of chlorosis. In this case the administration of iron was also followed by improvement. These cases were, according to the author, undoubtedly instances of chlorosis.—*Medical Record*.

LOCAL VARIATIONS IN THE MORTALITY FROM SUMMER DIARRHEA.*

BY HENRY DWIGHT CHAPIN, M.D.,
New York.

It is generally believed that the cause of the high infant mortality during the summer months lies in the milk supply, on the ground of the high bacterial content of the milk. In some respects this is so, but there must be some other factor or factors at work. In looking over the number of deaths from acute diarrheal diseases in New York State, to see if there was any connection between the temperature, or temperature and rainfall, and the number of deaths from diarrheal diseases, it was found that there was no apparent connection, for in some months with very high average temperature and low rainfall there were less deaths than in other months when the temperature was much lower and the rainfall greater. Seibert reached the same conclusion a number of years ago and stated that epidemics of summer diarrhea began when the minimum daily temperature reached 60° F. He accounted for this by reasoning that milk began to turn readily at this temperature.

New York State is divided into a number of districts by the State Board of Health. About one half of the population of the State is in the maritime district which includes Greater New York and its suburbs. The number of deaths from acute diarrheal diseases were collected for this maritime district, and for the remaining portion of the State. In both portions of the State the number of deaths varies greatly from year to year, regardless of the temperature. It is impossible to suppose that throughout the whole State the methods of handling milk are better in the years with a small number of deaths, and poorer in the years with a large number of deaths.

Greater New York City draws its milk supply from a very wide area, which covers at least one half of the entire State. If an infected milk supply was the only cause of the variation in

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

the number of deaths from diarrheal diseases, New York City should show it particularly, as its milk is much older than that used in the country districts. But it is repeatedly found that in years when there is a large number of deaths in the country districts there is a small number in the maritime district, and in other years when there is a great number of deaths in the maritime district the number of deaths in the country district is very small. For instance, the number of deaths from acute diarrhea in the country and maritime districts was for the months of May to October inclusive:

YEAR.	COUNTRY DISTRICT.	MARITIME DISTRICT.
1899	2,187	3,557
1900	3,202	3,867
1901	1,898	6,115

In the country there was in 1900 an increase of over 50 per cent., and in the maritime district of less than 10 per cent. over the deaths of 1899. In the country in 1901 there was a decrease of 40 per cent., and in the maritime district an increase of 58 per cent. in deaths compared with 1900. In 1896 the country deaths increased 10 per cent., while the deaths in the maritime district decreased 10 per cent. compared with the figures for 1895.

At all seasons of the year there are large numbers of bacteria in milk, so mere numbers can play but a small part.

The most common bacterial change in milk is souring; sour milk is not necessarily an unwholesome article of food for adults, but milk that is just beginning to sour forms exceedingly tough curds in the stomach under the action of rennet, which on this account renders it unfit for infant feeding.

During the months of July and August milk is particularly liable to undergo a gassy fermentation, which causes a rennet curd of milk to become spongy and appear very much like a mass of unbaked bread dough. As far as is known, the souring and gassy fermentations of milk are caused by bacterial action on the sugar of the milk. Poisonous products are not thus produced, but these fermentations may and probably do cause indigestion in infants.

There is another type of fermentation in milk that is less common, in which the proteids of the milk are attacked, foul smelling gases and poisonous compounds being formed. Most of the bacteria that attack proteids, the putrefactive varieties,

DEATHS FROM ACUTE DIARRHEAS

MARITIME DISTRICT

NEW YORK, KINGS, QUEENS, RICHMOND, WESTCHESTER COUNTIES

MONTHS	DEATHS	MEAN TEMPERA-TURE	HIGHEST TEMPERA-TURE	LOWEST TEMPERA-TURE	GREATEST DAILY RANGE	RAIN FALL INCHES	HUMIDITY
1892. MAY...	82	60.0°	81°	42°	31°	4.30	74
" JUNE...	588	72.0	91	56	25	2.96	—
" JULY...	2961	74.8	96	56	23	2.45	70
" AUG...	1339	73.9	93	59	21	3.90	74
" SEPT...	670	66.0	83	51	25	0.87	69
" OCT...	303	55.4	79	39	26	0.63	66
Total.	5943						
1893. MAY...	120	59.0°				5.06	
" JUNE...	397	69.0				2.56	
" JULY...	2504	75.0				1.26	
" AUG...	1334	72.0	93°	58°	24°	7.02	72
" SEPT...	755	64.0	84	45	25	2.27	72
" OCT...	362	57.6	78	34	28	5.28	75
Total.	5472						
1894. MAY...	90	60.8°	83°	44°	28°	3.90	74
" JUNE...	652	70.6	94	48	25	0.86	70
" JULY...	2403	76.1	96	58	25	2.89	69
" AUG...	1065	73.0	90	55	26	1.54	70
" SEPT...	706	69.6	94	46	22	8.04	78
" OCT...	328	57.2	75	30	23	5.83	73
Total.	5244						
1895. MAY...	103	59.4°	95°	38°	30°	2.04	73
" JUNE...	512	70.0	95	52	33	2.57	79
" JULY...	2258	71.0	89	55	21	4.40	72
" AUG...	1405	74.0	90	55	21	4.12	—
" SEPT...	983	69.7	97	44	23	0.95	72
" OCT...	298	51.0	71	34	21	4.04	70
Total.	5559						
1896. MAY...	145	64.°	91°	43°	38°	2.01	74
" JUNE...	729	66	87	51	22	6.38	80
" JULY...	1990	73	89	59	23	4.45	82
" AUG...	1314	73	94	56	23	2.46	78
" SEPT...	525	65	86	43	24	3.04	80
" OCT...	205	52	72	36	25	1.71	79
Total.	4908						

DEATHS FROM ACUTE DIARRHEAS

MARITIME DISTRICT

NEW YORK, KINGS, QUEENS, RICHMOND, WESTCHESTER COUNTIES

MONTHS	DEATHS	MEAN TEMPERA- TURE	HIGHEST TEMPERA- TURE	LOWEST TEMPERA- TURE	GREATEST DAILY RANGE	RAIN FALL INCHES	HUMIDITY
1897. MAY...	61	59°	79°	44	23°	5.30	70
" JUNE...	425	65	86	48	21	2.98	68
" JULY...	1938	73	89	60	21	9.52	82
" AUG...	1010	71	84	60	18	3.14	76
" SEPT...	654	65	91	44	26	1.64	72
" OCT...	252	56	86	37	27	0.72	73
Total.	4340						
1898. MAY...	80	56.5°	86°	38°	22	5.55	80
" JUNE...	285	68.9	89	53	24	1.28	69
" JULY...	1738	74.0	99	57	29	4.76	77
" AUG...	1481	74.3	90	60	17	3.12	78
" SEPT...	979	68.8	94	49	22	1.28	76
" OCT...	305	57.6	80	38	25	6.14	79
Total.	4868						
1899. MAY...	69	61 °	84°	46°	27	1.14	
" JUNE...	555	72.2	97	55	31	1.83	
" JULY...	1491	73.8	90	59	22	6.20	
" AUG...	809	73.6	91	60	21	3.90	
" SEPT...	472	65.2	84	46	20	5.89	
" OCT...	161	58.2	79	36	22	2.05	
Total.	3557						
1900. MAY...	86	60.8°	89°	38°	31°	4.05	62
" JUNE...	371	71.4	91	56	22	3.36	70
" JULY...	1459	76.4	94	58	27	4.33	72
" AUG...	967	76.8	95	60	28	2.69	71
" SEPT...	691	70.8	90	53	18	2.36	72
" OCT...	293	60.8	77	37	29	4.17	79
Total.	3867						
1901. MAY...	188	58.6°	82°	44°	27°	7.01	74
" JUNE...	371	71.3	97	53	25	0.94	66
" JULY...	1831	78.1	99	64	24	5.41	75
" AUG...	1891	75.6	88	63	20	6.88	77
" SEPT...	1314	68.4	87	49	23	2.33	74
" OCT...	520	56	75	38	24	2.20	69
Total.	6115						

DEATHS FROM ACUTE DIARRHEAS
 NEW YORK STATE EXCEPT NEW YORK, BROOKLYN, LONG ISLAND, STATEN ISLAND, WESTCHESTER COUNTIES
 (MARITIME DISTRICT)

MONTHS	1892.			1893.			1894.			1895.			1896.		
	DEATHS	MEAN TEMP. °	RAIN FALL INCHES	DEATHS	MEAN TEMP. °	RAIN FALL INCHES	DEATHS	MEAN TEMP. °	RAIN FALL INCHES	DEATHS	MEAN TEMP. °	RAIN FALL INCHES	DEATHS	MEAN TEMP. °	RAIN FALL INCHES
MAY	31	54.2°	5.60	55	55.°	5.74	46	56.8°	5.°	54	58.7	2.60	60	61.°	2.52
JUNE	88	65.0	2.54	81	67.7	6.46	87	66.8	3.41	114	69.3	2.75	186	64.7	3.19
JULY	668	60.2	4.56	702	68.9	3.29	855	70.9	2.58	716	66.8	3.12	1096	79.4	4.90
AUGUST.	989	68.1	6.48	1072	68.	6.32	1003	65.7	1.61	898	68.1	4.11	1012	68.9	2.98
SEPTEMBER.	586	59.6	2.35	640	57.0	3.20	748	63.8	4.97	689	65.0	2.31	552	59.4	4.63
OCTOBER	188	48.2	1.71	171	51.0	2.41	307	51.2	4.63	256	44.0	1.94	133	46.1	2.57
Total	<u>2550</u>				<u>2721</u>			<u>3046</u>		<u>2727</u>			<u>3039</u>		
MONTHS	1897.			1898.			1899.			1900.			1901.		
	52	55.6°	4.14	47	56.1°	4.45	53	57.2	2.90	71	55.8°	2.35	48	55.6°	5.03
JUNE	78	61.6	3.63	87	66.8	2.96	131	67.5	2.39	106	66.6	2.63	79	66.7	3.35
JULY	458	72.1	6.81	560	72.2	3.17	577	70.3	3.72	623	70.6	4.10	400	73.0	4.28
AUGUST.	789	66.0	3.06	864	70.0	6.14	726	60.3	1.88	1018	71.4	3.24	664	69.0	5.11
SEPTEMBER.	517	60.3	2.01	893	63.8	3.10	500	59.2	4.46	965	64.0	2.27	494	61.4	3.46
OCTOBER	192	51.0	1.06	382	51.5	5.19	200	52.5	2.27	419	55.9	3.05	213	49.7	2.03
Total	<u>2086</u>				<u>2833</u>			<u>2187</u>		<u>3202</u>			<u>1898</u>		

are spore bearing and consequently liable to be carried in dust while the souring and gassy varieties are not thought to be spore bearing, and hence not so likely to be carried in this manner.

It is certain that the great increase in the number of deaths in New York City in the summer of 1901, cannot be attributed entirely to the milk supply, or to the heat, for the heavy mortality was in August, September and part of October, and not during the excessively hot weather of the latter part of June and early July. In and around New York City there was in the summer of 1901 the greatest number of deaths for ten years, and during the same period the least number of deaths in the country. During the previous summer there was next to the lowest number of deaths for ten years in the city district, and the greatest number for ten years in the country. If the primary source of infection was the milk supply the deaths in the city districts should have shown at least a proportionate increase in the summer of 1900, and the country districts should have had a large number of deaths in 1901.

It is conceded by all that the intense poisoning cases of summer diarrheas are the result of putrefactive changes in the intestinal contents, excessively foul stools accompanying high fever as a rule. The great source of putrefactive bacteria is the *soil* which consists of a mixture of decomposing organic matter and earth. Dust contains great numbers of putrefactive bacteria and spores, and it is from such dust and dirt that milk becomes infected with putrefactive bacteria. Theoretically we should expect to find a great deal of summer diarrhea in localities where soil rich in decomposing matter is being turned over and dried so that it can be carried by the wind as dust or possibly by flies. This may account for the occasional infection of breast-fed infants.

With the removal of horse cars and with cleaner streets in Greater New York the number of deaths from diarrheal diseases had on the whole been steadily declining for the past ten years, and at the same time the population had been increasing. In 1901, the Borough of Manhattan, was torn up from one end to the other for the purpose of building the subway; water pipes and sewers were opened and changed, and the streets were very dusty.

It is certainly a remarkable coincidence that with an unusually small number of deaths from diarrheal diseases in the

remaining portion of the State, the steadily declining number of deaths from the same cause in the city district should suddenly increase 58 per cent., when the streets were torn up.

There can be no doubt that in preventing diarrheal diseases in summer, attention must be paid to local conditions as well as to improving the milk supplies.

DISCUSSION.

DR. SEIBERT.—The author of the paper has divided the State of New York into country and maritime districts. The only valuable statistics we can get in regard to the milk supply is by taking a city where the mode of supply is carried on in a uniform manner. The State of New York is so extensive, a whole country in itself, and the conditions for the milk supply as well as of the weather vary so much that I do not think this classification can be of value.

As to the matter of temperature and rain-fall, the author's statistics, I believe, are antiquated. I have shown in my work on cholera infantum and the weather (*Medical Record*, March, 1888) that it is misleading to compare mean monthly temperatures with mortality or morbidity statistics. In 1878 (for instance) in the month of August occurred the greatest rain-fall in New York for many years—7.2 inches in three days; the rest of the days were clear and bright and not a drop of rain fell. Was that a wet or a dry month? My investigations were carried on so that not alone the temperature and other weather constituents of each day of ten years were taken, but also three observations of each day, and charts were made showing the conditions. I think this question was settled by me, for European investigators at least, that monthly sums and averages cannot be used in scientific work of this kind any more. Dr. Chapin said that in a certain year 1,800 children died in August and in July 1,831. In my work I had found a law which holds good for the principal cities of Europe and America, that practically in each July more children die of summer complaint than during the following August. There may be exceptions as in this one year, as the author has pointed out. From 1878 to 1888 about 1,200 children died in New York during every July of summer complaint and during the following August usually not more than half that number, no matter whether the temperature was higher or not. This law has a simple explanation: if 1,200 babies die during July in one city, then in the following August there are 1,200 babies less to get sick.

Dr. Chapin says this abnormal mortality of last summer may bear some relation to the digging up of the streets in New

York in making the underground railway. Possibly so, but if you remember that the milk is not carried around in open but in closed cans through the streets, then I hardly think we can make that connection. The main source of infection of milk is to be found during milking, when cow's manure falls into the open pail.

DR. ADAMS.—There are many factors responsible for infant mortality in summer. The meteorological conditions play their part and I think if the humidity is studied with the temperature it will be found that it does hold some relation to the cause. Dr. Busey of Washington, D. C., published a work in which the meteorological conditions in relation to infant mortality in the cities of New York, Philadelphia, Washington and New Orleans, were studied and his conclusions were published in that work. I was associated with him at that time and had an opportunity to study this subject. Now so far as heat as a factor is concerned my observation is that during the prolonged hot spells in which the temperature averages 96° for the day, that the children are not sick during that time, but it is when the humidity is great and when the temperature falls. You cannot slight any one of these conditions.

DR. COTTON.—A month is an arbitrary thing when you compare one month with another, and say the mortality of this month is so much and the temperature and humidity so much. I do not think statistics of this kind are satisfactory. Suppose the temperature falls on the 30th day of July and the patient dies on the 5th day of August, is the death due to the conditions pertaining in August or to the conditions in July? What right have we to assume that deaths in July are due to conditions in that month? They may have been due to conditions in June.

DR. CHAPIN.—I have only tried to show the causes operating here in New York and have not tried to lay down rules for St. Petersburg and London. I have said what caused the variation. In Greater New York in 1901, 6,115 cases died from summer diarrhea—in 1900, 3,867. These tables can be studied and the members draw their own conclusions.

To Allay the Irritation in Varicella.—Rochardière (*Journal de médecine interne*, February 15th) recommends powdering the body with the following to allay irritation:

R/ Tartaric acid.....	.....	.....	50 parts;
Starch, } of each.....	.....	.....	50 "
Talc, }			

M.

For the face, sterilized petrolatum is recommended, to which, if the irritation is very intense, a little tartaric acid may be added.—*New York Medical Journal*.

MENINGOCELES AND ALLIED MALFORMATIONS.*

BY JOHN RUHRÄH, M.D.,

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THE LITERATURE concerning meningocele and allied malformations is for the most part rather unsatisfactory as it is scattered and more or less fragmentary. In the earlier reports the terms used in naming the various conditions are interchanged and often the descriptions are so meagre that it is impossible to tell the exact nature of the tumor under consideration. A knowledge of the conditions is desirable for we are told that out of 14 cases of frontal encephalocele operated upon but 2 lived. Out of the entire 14 only 3 were correctly diagnosed before the operation.

DEFINITION.—The terms meningocele, encephalocele and hydrencephalocele are to be preferred in describing the cases clinically although more exact names may be used in the pathological reports, as for example in the report appended.

Holt gives the following concise definition which I do not think can be improved upon. "These three conditions have in common a protrusion of some part of the cranial contents through an opening in the skull. In meningocele there is a protrusion of the membranes alone. These form a sac which is usually though not invariably filled with fluid. In encephalocele there is a protrusion of part of the brain substance. This is connected with the rest of the brain by a constricted neck or pedicle. There may or may not be fluid present in the tumor. In hydrencephalocele there is a protrusion of the brain substance which contains a cavity filled with fluid, this cavity communicating with the distended lateral ventricles."

ETIOLOGY.—Concerning the exact causes of these malformations we are profoundly ignorant. There are often at the same time other deformities, such as hare-lip and club foot. Steffan gives three ways in which these malformations may arise. First, by a union of the brain sac with the amnion

*Cases from the services of Professors Chambers, Dobbin, Brack and McGlannan.

whereby the full development of the bone at this point is hindered. These cases are very rare and in them there is no other disease of the bone. Secondly, through the presence of disease of the bone nonunion may result and so a space be left. Thirdly, and most commonly, there is disease of the bone, which due to thickening and thinning of the bone gives rise to porosity or holes. In experiments at producing protrusions of the dura mater and contents artificially on the cadaver it has been found that it is impossible to do so while the dura is intact. From this we may conclude that there is always disease of the dura and that there are usually also defects or disease of the brain itself. We must also infer that there is a condition which produces internal pressure. There is another theory that these cases are primarily intrauterine hydrocephalus and that as the bones of the skull have come together portions of the brain or membrane have been left protruding from the opening in the bones or from between the bones. Other authors merely state that they are due to errors of development early in fetal life.

Concerning the other deformities it may be stated that in the 75 cases of Laurence, there were 16 in which there was also spina bifida. In one of my own cases this was the case. In 45 cases where the condition of the brain was mentioned in only 5 was it normal. In the remainder it was either softened, atrophied or there was effusion in the lateral ventricles. The cerebellum was mentioned in 19 cases and in 10 of these it was atrophied.

SEX.—As regards sex the deformity occurs about equally in males and females. In 39 cases where the sex was stated 21 were in males and 18 in females.

The tumor does not as a rule cause any difficulty during labor. In the cases reported the statement is made that the tumor is born first. In a case seen recently where the tumor was the size of an orange (22 cm. in circumference) this was the case and there was no difficulty whatever. Suckling reports a case where the tumor was the size of a pig's bladder at birth. It was born first and without difficulty. In a case published by Earle there had been two other children in the family and they were hydrocephalic.

LOCATION OF TUMOR.—The site of the tumor may be anywhere on the skull but they are usually either occipital or frontal. In 93 cases Honel found that 68 were occipital, 16

frontal and 9 basal. Schatz in 105 cases gives 59 occipital and 46 frontal and does not mention the basal form. Laurence in 75 cases gives 53 occipital.

The tumor is usually in the median line but not necessarily so. It may be at the angle of the eye or through the ethmoid or the sphenoid. These latter locations are exceedingly rare. Virchow reports a most remarkable case where the tumor projected through the ethmoid and sphenoid and protruded from the mouth forming a growth outside the mouth the size of a small apple. Hebert had a case where the sac was along side the neck. In this case pressure caused dilatation of the pupils and discomfort. Edema of the glottis occurred while the case was under treatment. It was cured, the treatment being multiple incisions and aspirations.

DIAGNOSIS.—The differential diagnosis of the various forms may be made on the following points: Treves, Bergeron and the other authors who have paid attention to these conditions are pretty much in accord on the subject. In meningocele there is usually a small tumor at birth which increases in size, it is usually pedunculated but may not be. The tumor is smooth but has a distinctly cystic feel. It fluctuates and in some cases is reducible or it may be diminished in size from pressure. It is translucent if the tumor is not too large nor the walls too thick. Pulsation is rare. Pressure usually produces cerebral symptoms such as crying, vomiting, convulsions and stupor. On crying or forced expiration they become more tense. The skull is normal.

In encephalocele there is a small, smooth tumor, pulsating and nontranslucent. It is rarely pedunculated. Pressure produces cerebral symptoms. On moderate pressure there is no pain, no malaise and no reduction. On attempting to effect reduction by harder pressure there is noted dilatation of the pupil, strabismus and more rarely vomiting and convulsions. On crying it becomes more tense. Pulsation synchronous with the pulse practically always means encephalocele.

In hydrencephalocele there is a large tumor generally pendulous, pedunculated and lobulated. It is generally not translucent and not reducible. Fluctuation is present but rarely pulsation. Pressure does not as a rule produce symptoms. On crying it is made only slightly more tense. Very large tumors are practically always hydrencephalocele.

The differential diagnosis from other conditions is generally easy when one bears in mind the probability of a cerebral hernia. The usual error is to mistake the swelling for an abscess and to treat it accordingly. From false meningocele it may be distinguished from the fact that the latter comes on after an injury or after some operative procedure. From other tumors tenseness on crying is one of the most valuable guides. Among other tumors and conditions which may be mistaken for cerebral hernia are sarcoma, congenital lipoma, sebaceous cyst, dermoid cyst, subcutaneous nevus, cephalhematoma, periorbititis and abscess.

PROGNOSIS.—The prognosis of these cases is always serious. The most of them die early. A few attain old age and most of them are weak minded.

The meningoceles increase slowly in size as a rule and may become cut off from the cranial cavity by closure of the opening. In some cases the sac ruptures and death ensues. Encephaloceles grow but slightly or else remain stationary.

It is interesting to note a few of the cases that reached adult life. Laurence mentions 6 cases as follows. (1) In 1774 M. Guyenot brought before the Academy of Surgery of Paris, a man thirty-three years of age who was born with a tumor on the left side of his forehead. This tumor measured two and a half inches across and pulsated. Around it could be felt a defect in the ossification in the frontal bone. The man's intellect was unimpaired but there was a loss of power of the right arm. (2) In 1813 M. Lallemand was about to operate on a girl of twenty-three for what appeared to be an ordinary wen on the back of her head. He had circumscribed the base of the tumor by an incision when he detected the dura mater. The operation was left off at once but the girl died eight days later from meningitis. The tumor proved to be an encephalocele. (3) Wedemayer observed a case in an idiot girl of eighteen. (4) Mr. Robert Adams reported a case of a man of twenty, of a hernia of the brain where the tumor occupied nearly the whole of the right half of the forehead. (5) The same author had a case of encephalocele in a girl of six. (6) Breschet met with a case in the dissecting room where there was a large tumor of the cerebellum.

In addition to these Talko mentions a case in a man of thirty-three whom he says was fairly well developed. He also mentions a man of fifty-eight.

Chelius reports cases in a twenty-year-old girl and in a man of sixty. He also speaks of a case in a feeble minded girl who died at the age of seventeen after having led an immoral life from the age of eleven. (*Se livra en libertinage et à la masturbation*).

Of 105 cases of encephalocele collected by Schatz, 59 were occipital and 46 frontal, and of these 24 and 32 respectively were not treated. Of the former 4 were born dead, 4 died in the first two days, 4 in the first fourteen days, 1 after three weeks, 1 after four weeks, 1 after five weeks and 6 at an unknown age. One was living at one day, 1 at nineteen days and 1 at eighteen years. Of the latter 1 was a fetus, 2 died on the first day, 5 before eight days, 5 to the fourteenth day, 3 to six weeks, 1 after eleven weeks, 1 after five months, and 1 after fifty-four months and 7 at an unknown age. At the time of the report there were living 1 each at the ages of three months, two, nine, twenty and thirty-three years and 1 died aged fifty-eight.

OPERATION.—Of the 35 cases of occipital encephalocele operated upon 6 were cured by puncture and compression and several of these were of a considerable size. Of 8 cases where the knife was used 5 died, and of 5 cases where the ligature was used 3 died. Of the 14 cases of frontal encephalocele operated upon only 3 lived and of these 2 were cured. Of these, however, the correct diagnosis was only made three times before the operation and consequently the operative procedures were not those that would have otherwise been chosen. In 9 cases of meningocele 3 were cured, 1 by cutting it off, 1 by the use of iodin injections and pressure and 1 by ligature. Two of the cases died after puncture and 1 after iodin injection. The remaining cases were treated without any result.

As regards the age for operating Broca has stated that all cases under one month of age in which removal is attempted die. Annandale has reported a case of recovery in a child of seven weeks which I believe to be the youngest case on record.

Huchinson states that out of every 10 operated upon there is 1 recovery. Without operation a few live to adult age. In the 75 cases of Laurence 6 reached adult life.

In many cases after an apparently successful removal the child dies in a few days from convulsions evidently due to the increased pressure within the skull caused by the continued



Fig. 1.—DR. CHAMBERS' PATIENT, (CASE I.)

secretion of the cerebral fluid without the safety valve action of the tumor.

In other cases hydrocephalus develops after removal. This occurs where the bones of the skull have not yet united. In a rather large number of cases the child dies of malnutrition or of some intercurrent affection within a year after the operation and in many cases within a few months after. The resistance of these children is decidedly below par. The cases are not always hopeless however. Mitchell reports a case of meningocele half the size of an orange situated at the occipital part of the skull with an opening in the cranium an inch and a half in diameter which recovered spontaneously. Ronaldson reports a similar case where the child was subsequently well and intelligent.

CHOICE OF OPERATION.—The management of these cases includes three plans of treatment.* In the present state of our knowledge it is impossible to say which is best. The greatest number of the cases reported are from operations done in the preaseptic age and modern methods may make a decided difference in the results.

The first plan is to do nothing for the cases unless rupture threatens. This is advised by so good an authority as Treves and the mortality is about as good as in the other methods of treatment.

The second plan is to use aspiration with the subsequent injection of Morton's solution or some other iodin mixture and to apply pressure. Some of these cases do well but it is not without danger.

The third plan is to tie the tumor off with a ligature and excise it. Some cases recover. Under one month of age the operation is absolutely contraindicated. The presence of brain matter in the tumor is not a bar to operation but in hydrencephalocele the operation should not be done as the result is most uniformly fatal. The only case of recovery being that of Richaux which is reported by Raab.

* Since writing the above I have seen a short note by Prof. Luigi Concetti of Rome. He advises immediate operation, even a few days after birth. He mentions two favorable cases operated on by Bastianelli Raffaeli. One of these was three days old on entering the hospital. He does not state the age at the time of operation. He claims that many of the bad results are due to the fact that operations are undertaken when the tumor is already infected.—*Terzo Rendiconto Statistico-Clinico. L'Insegnamento della Pediatria in Roma, 1901.*

Many of the cases die of the immediate effects of the operation, some from infection and some from the development of intracranial pressure. In some cases, as remarked before, the child develops hydrocephalus. Arnold's case serves as an example. He operated upon an occipital tumor the size of a hen's egg which included a portion of the cerebellum. After the operation the child had fever, vomiting and twitching but recovered. Later on at the age of seventeen months the child



Fig. II.—DR. CHAMBERS' PATIENT, (CASE I)

had a head measuring twenty-one inches in circumference, which is a very considerable hydrocephalus.

FALSE MENINGOCELE.—In this connection a word concerning false meningocele may not be out of place. The condition is often spoken of as Billroth's disease. Huber has given one of the best accounts and has formulated his opinions and the facts concerning these cases. Weinlechner and Conner have also made collective investigations. The cases are not always diagnosticated during life. Out of 55 cases 11 were discovered

post mortem. A false meningocele is one coming on primarily after a simple fracture or secondarily after a compound fracture or after a brain operation. The sac is formed not from the brain membranes but from the coverings of the skull. When it occurs in a simple fracture the rent in the tissues involves also the brain membranes. As Huber states, "the presence of a false meningocele is proof positive that the lateral ventricle has been involved. If pulsation be present or pressure upon the tumor gives rise to intracranial symptoms, the communication with the interior is patent. It must not be forgotten, however, that the opening may be small or that several openings may exist, and that their course may run in a tortuous manner, so that pulsation may be absent and pressure may not give rise to intracranial symptoms." At the time of the injury there may be no symptoms or there may be symptoms of cerebral injury, such as loss of consciousness, cramps, paralysis either local or general, an irregular pulse and irregular breathing, abnormal pupil reactions and also temperature. Later on there may or may not be symptoms. If there are late symptoms they consist of disturbance of movements corresponding to the location of the injury and there may be hemiatrophy of the face or atrophy of the face and shoulder girdle. There may be optic atrophy or hemianopsia, aphasia or epilepsy may develop. Winwarter describes a case where there was slowing of the pulse. The tumor may come on immediately after the injury or it may not come on until weeks or months afterwards.

The cases following simple fracture of the skull are peculiar to children. Nicoladoni describes a case that will serve as an example. The child was five and a half months old. The tumor was the size of an orange and extended from the ear to the sagittal suture. It was translucent and hard; it pulsated and became tense when the child cried. It was emptied several times of 200 c.cm. of fluid and 6 c.cm. of equal parts of iodin and water injected. This was aspirated after five minutes' time. After six punctures covering a period of six months the tumor disappeared. The treatment of these cases may be to quote Huber again, either curative or palliative. If the communication with the ventricle has been occluded aspiration may be employed, injection of iodin-glycerin may be used, or the sac maybe dissected out or destroyed. If the opening into the ventricle is still patent, aspiration may be resorted to as a

temporary expedient. In case more radical measures are required, the lateral ventricles may be drained under the strictest asepsis.

CASE I.—ENCEPHALOMENINGOCELE.—Clinical history from the notes of Dr. Owen.

Father and mother living and in good health. One brother aged four perfectly formed and in good health. When born had a tumor on back of the head about the size of an egg. This tumor increased steadily in size while the child's general development remained poor. About eight months ago the tumor ceased enlarging and since that time the child's general



Fig. III.—FROM THE SERVICE OF DRs. DOBBIN AND BRACK, (CASE II.)

growth has been rapid. Has gained steadily in weight and in strength and has cut most of her teeth. Has begun to talk a little. The parents state that at one time several months ago the tumor decreased notably in size and the sac became very flabby. This condition lasted only a few days and it soon refilled.

At present the child is in excellent health. Face is well formed but the head is small. Length of child, 77.5 cm.; circumference of thorax, 44.5 cm. Head measurements: Occipitofrontal circumference, 42.5 cm.; occipitomental circumference, 44.5 cm.; occipitobregmatic circumference, 42.5 cm.; trachelobregmatic circumference, 46 cm.; biauricular

line, 28 cm.: chin to occiput in median line, 40 cm. Limbs and body well developed and strong. Appetite and digestion good. Anterior fontal closed.

Attached to the median line of the occipital region is a large round or ovoid tumor (accommodating itself to the position of the patient). It measures thirty-three inches in circumference. It is covered with normal skin and close to the head there is a covering of hair. In spots the epidermis is rough and broken. On palpation it is smooth fluctuating and attached by a rather small pedicle. The skin is not sensitive and pressure produces no symptoms. The child usually lies with the weight of the head and shoulders on the tumor. The sac feels thick and dense and no pulsation can be felt. (Figs. I., II.)

October 23, 1901, 1 P. M. Operation for the removal of the tumor by Dr. Chambers. No anesthetic was given. The usual preparation for head operations was gone through with. An incision was made around the pedicle, just where it expanded to form the tumor, going through the skin. A number of large vessels was divided but hemorrhage was easily controlled by artery forceps. The skin was dissected up from the pedicle towards the head exposing the sac at its point of communication with the interior of the skull. The opening through the bone was about half an inch in diameter. A strong ligature of silk was tied around the pedicle at this point and the tumor removed by cutting through the pedicle on the distal side. The edges of the pedicle were inverted and united within a continuous silk suture and the ligature removed. The skin flaps were brought together over the stump and sutured with silk worm gut. Over this an ordinary dressing of sterile gauze and cotton was applied.

The patient did not appear to suffer much pain but towards the end of the operation showed signs of shock, and whiskey and strychnia were administered hypodermically. Condition of shock continued for some time after the operation. Strychnia 1-240 gr. ordered every four hours. Temperature 103 1-5°. Respiration very irregular. Pulse very weak and too rapid to be counted.

Ten P. M. General condition much improved. Pulse still weak and rapid. Temperature 103 1-5°. Respiration much improved.

October 24th. Eight A.M. Condition improved. Pulse less

rapid and stronger. Bowels have moved once and urine has been passed twice. Passed a restless night, and is still restless and very irritable. Takes nourishment greedily. Four P. M. Has slept at intervals since morning. Pulse 120. Temperature 100 1-5°. Takes and retains nourishment. Six P. M. Vomited once. Strychnia discontinued. Temperature 100 4-5°. Pulse good.

October 25th. Slept several hours during night. Mental condition bright but restless and irritable. Pulse 120. Temperature 102 1-5°. Has vomited several times. Seven P. M. Has had an attack of vomiting followed by a spasmodic contraction of the extremities beginning in the left arm and lasting



Fig. IV.—(CASE II.)

about half a minute. Temperature 101°. Pulse 90. (Mother stated that she had used morphia $\frac{1}{4}$ gr. doses without ill effect.) Child was given 1-16 gr. morphia and soon became quiet.

October 26. Three A. M. Violent muscular spasm of trunk and extremities. Respiratory muscles became temporarily fixed. Abdominal muscles tense. Forearms pronated, fingers and toes flexed. Pupils equal, rather small but respond to light. Conjunctival reflex sluggish. Patellar reflex slightly exaggerated. No ankle clonus. Respiration noisy, and large quantity of mucus collects in the throat. Patient comatose and has spasms at short intervals, lasting from a half to two minutes. At times chin is drawn to the right side. Chloroform by

inhalation until the child was quieted. Temperature 103. 3-5°. Pulse 140. Twelve M. Only one convulsion since chloroform at 3 A. M. Wound dressed. Is uniting by first intention. Pulsation over the stump of the pedicle. Temperature 104°. Pulse 144. Respiration 24. Potassium bromid per rectum every four hours. Seven P. M. Convulsions frequent again. Chloral hydrate 5 grs. per rectum.

October 27. Much weaker. Convulsions recurred several times during the night but were less severe and of shorter duration than at first. Left pupil dilated, responds very feebly to light. Conjunctival reflex absent. Right side of chest does not expand as well as left. Temperature 103 4-5°. Pulse over 150. Two P. M. Patient has remained since 8 A. M. with radial pulse imperceptible. Respiration shallow, rapid and noisy. Left side of thorax does not expand but both sides are alike on auscultation and percussion, *i. e.* loud, noisy rales and resonance. Has had a few slight convulsions. Temperature 103°. Pulse ?. Respiration 54.

October 28th, 2.40 A. M. Died. No autopsy was permitted.

PATHOLOGICAL REPORT ON THE TUMOR BY DRs. STOKES AND ROHRER.

The tumor before being evacuated measured 82.5 cm. in length, 75 cm. in breadth, and 67.5 cm. in depth. It had a pedicle which measured 6.5 cm. in length in breadth and in depth, connecting it with the cranium. Its contents were fluid, clear at first and measured 5875 c. c., which is nearly a gallon and a half. The fluid is of a port wine color, specific gravity 1010, slightly alkaline and rich in albumin and peptones.

Microscopically, it contains numerous red blood corpuscles, now and then a leucocyte, now and then an epithelial cell and a few endothelial cells some singly and some in plates. These cellular elements are probably the result of trauma during the operation. The fluid foams and froths on being poured from one vessel to another, and evinces no disposition to solidify. The red cells look paler than usual and some are crenated.

The tumor or cyst wall varies from 5 to 16 mm. in thickness. The cystic tumor, viewed as a whole, is spherical in shape and grossly its walls seem to consist of the usual coverings of the scalp, augmented by the serous membranes of the

brain. Microscopical examination confirmed this opinion. The external surface of the cyst wall is pale, rugous in appearance and sparsely covered with long hairs. Its pedicle is covered with a pretty dense growth of hair. The diameter of the cyst when collapsed is 28 cm. in either direction. Its internal surface is mottled in appearance, some areas being covered with blood. Blue distended vessels course to and fro. These are probably veins. Small arteries are also seen. Three fibrous bands about 4 mm. in thickness and varying in breadth from 1 to 4.5 cm. radiate from the severed pedicle and converge to a point about half way between the summit and the cut surface of the growth, which feature suggests a possible partial sacculation at an earlier date. These sacculated accumulations are three in number. The internal surface of the cyst wall has a glistening appearance, which is undoubtedly due to the serous membrane which covers it.

MICROSCOPICALLY.—The cyst wall is principally made up of a layer consisting of normal epidermis covering a thick layer of subcutaneous connective tissue. The latter contains many hair follicles with sebaceous and sudoriferous glands. The internal covering consists of a tissue very rich in blood vessels and connective tissue cells; but in certain areas it is covered by a thin layer of tissue resembling brain tissue. Under the high power much of this tissue shows a thickening of the neuroglia. This misplaced brain tissue is only present in sections taken from certain areas of the tumor and is entirely absent in other sections. The tissue between the adherent cerebral matter is certainly not a normal dural membrane as it is much richer in blood vessels and connective tissue cells, at times even showing small infiltration.

PATHOLOGICAL DIAGNOSIS.—Encephalomeningocele occipitalis.

CASE II.—ENCEPHALOMENINGOCELE.—From the Outdoor Service of the Maternite. Service of Professors Dobbin and Brack. Case of Drs. Quessy and Headley. (I wish to thank the above gentlemen and especially Dr. Graves for many favors concerning this case.)

December 3, 1901. Colored male child. Labor normal. The child was born very quickly in one pain just at the arrival of the physicians. There was consequently no vaginal examination. The perineum was not ruptured. The pregnancy had

previously been diagnosed as a small child in the left occiput anterior position. On the occipital part of the head there is a tumor measuring 19 cm. in circumference. On this there was a small cruciate cicatrix on the posterior surface. Two weeks later this cicatrix ulcerated but healed subsequently on the application of antiseptic dressings. The tumor is cyst-like, somewhat irregular as to its surface and is pedunculated. It does not pulsate. It is rendered a little tense on crying. It is semitranslucent. It cannot be reduced and no symptoms are produced on pressure. (Figs. III., IV.)

January 3, 1902. The tumor has grown somewhat, measuring 22 cm. in circumference. The head measures 33 cm. in circumference.

January 18, 1902.—The child died suddenly.

AUTOPSY.—Pathological report by Drs. Stokes and Rohrer.

The body is well nourished and the only abnormalities noted are injection of Peyer's patches and slight congestion of the kidneys.

SPECIAL NOTE.—Tumor as described above. The orifice in the occipital bone is 3 cm. above the foramen magnum and is 15 mm. in diameter. It is a little to the left of the median line. A probe when introduced into the lateral ventricle can be passed through a canal surrounded by cerebral tissue into the sac. On opening the sac of the tumor a round teatlike mass of cerebral tissue can be seen projecting into the sac. The wall of the sac does not show any cerebral tissue on gross inspection excepting on the posterior aspect of the wall. At this situation there is a mass about the size of a walnut which projects outward into the cavity of the sac and which resembles cerebral tissue. The serous coverings of the brain which constitute the sac wall are adherent to the inner surface of the scalp.

HISTOLOGICAL EXAMINATION.—Brain islet in wall of sac. The islet consists of an outer layer of the cerebellum and an inner layer resembling the granular layer. In certain places the outer molecular layer is covered with another granular layer which in turn is covered by a tangled network of capillaries. No distinct layer of Purkinje's cells can be made out but the tissue otherwise resembles cerebellar tissue. It is arranged in folds resembling the cerebellum.

CERVICAL CORD.—The cord is irregular in outline, the right

anterior horn appears larger than the left, which has apparently atrophied. Many of the nerve cells are atrophied. The central canal has not closed posteriorly.

CASE III.—At St. Elizabeth's Home. Seen through the courtesy of Dr. McGlannan.

The child, a negro, was about a week old when first seen. In addition to a spina bifida there was a small frontal meningocele in the median line just above the nasion. The anterior fontanel was large and there was separation of the two sides of the frontal bone. At the site of the meningocele there was a defect in the bone about 2 cm. in diameter. When the child was not crying the tumor was slight and not especially noticeable. On crying it became tense and very much larger extending over a centimeter in height. Pressure produced no symptoms but the tumor could be pretty well obliterated.

The spina bifida was not remarkable except that the tumor was covered by a very thin membrane. The skin was absent over the elevated portion of the tumor, which was about 2 cm. in height with a somewhat smaller base. This was punctured and pressure made over the site. After two punctures some days apart the tumor had entirely disappeared. The opening into the spinal canal could be plainly felt. This gave no further inconvenience during the child's life.

The meningocele gradually grew smaller as the child grew older. At the autopsy, when the child died at the age of two months, the meninges were normal, the small sacculation however was present.

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Clinical Memorandum.

REPORT OF THREE CASES OF COMPLICATED SCARLET FEVER.

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The following report of cases is a brief summary of the symptoms and treatment of complicated scarlet fever occurring simultaneously in three sisters, aged respectively three, five and a half and eight years, who were admitted to the charity wards of the Cincinnati Hospital during January, 1901. It was rather unusual to find the numerous complications existing in the same family at the same time, viz.: nephritis, suppurative otitis media, cervical adenitis, ulcerative stomatitis, arthritis, peritonsillar abscess, abscess of back, bronchitis and enterocolitis. No history was obtained as to how long the children had been ill before admission to the hospital, but they showed much evidence of neglect, and came under my care with some of the complications well advanced:

CASE I.—Anna H., aged three, admitted January 3, 1901.
Examination.—Temperature, 100° F.

Left side of neck.—From posterior cervical lymph nodes to anterior median line jaw is much swollen and indurated and skin reddened. Nodes not distinguishable from inflamed cellular tissue, and the whole is one mass. *Right side of neck.*—Not so much swollen as left. Diffuse pharyngitis present and tonsils somewhat enlarged. *Skin.*—Over lower part of back and buttock is desquamating in large scales; also from lower extremities in smaller scales.

Treatment.—Calomel; hot poultices of bichlorid applied to neck and changed every two hours; desquamating parts rubbed with 20 per cent. ichthyol ointment; milk diet.

January 4th.—Ten c.c. antistreptococcus serum injected at 5 P.M., with no effect.

January 5th.—Strychnin sulph., 1-150 grain, and whiskey one-half dram every three hours; one hot bath (100°) for ten minutes during the night and two baths during the day.

January 6th.—When liquids are swallowed part regurgitates back through the nose; child slightly delirious; stools frequent, thin, dark-green, and at times curds are present; urine negative.

January 8th.—Incised neck about one and a half inches to left of median line; considerable pus was discharged; inserted gauze drain and poulticed; purulent discharge from left ear appeared during last night.

January 9th.—Temperature very high all day; diminished secretion of urine; albumin present; general condition worse; changed diet to albumen water and raw beef juice.

January 11th.—Ulceration of gums present; child stupid; muscles back of neck rigid, but no retraction present; profuse diarrhea; discontinued hot baths.

January 12th—Grew weaker during the night and died at 8.30 A.M.

AUTOPSY held six hours after death.

Heart.—Valves normal; muscle pale, soft and shows cloudy swelling.

Lungs.—Venous congestion of lower lobes on both sides.

Stomach and bowels distended, and considerable pus found in peritoneal cavity.

Liver pale and dry, with numerous adhesions to intestine.

Kidneys.—Cloudy swelling present; pyramids hyperemic.

Mesenteric lymph nodes considerably enlarged and matted together.

Intestines.—Catarrhal colitis.

CASE II.—Louisa H., aged five and a half, was admitted January 3, 1901. *Examination.*—Submaxillary lymph nodes of right side of neck much enlarged, and also post cervical nodes; induration present; diffuse pharyngitis present with enlarged tonsils. *Skin.*—Desquamating in small, fine scales over both lower extremities.

Treatment.—Calomel; 20 per cent. ichthyol ointment to desquamating parts; inunctions oleate mercury (10 per cent.) to neck; milk diet.

January 4th.—Ten c.c. antistreptococcus serum given, with no effect.

January 5th.—Inflammation of neck is increasing and involves cellular structure; urine shows few granular casts; has

much difficulty in deglutition; hot bichlorid poultices applied to neck, two hourly; three hot baths (100°), ten minutes each in twenty-four hours; strychnin sulph., 1-150 grain, whiskey, one dram, every three hours.

January 6th.—At 4.30 P.M. made two incisions into a fluctuating mass in right pharynx, the second incision letting out large amount of pus; sprayed pharynx with peroxid hydrogen; child more comfortable and respiration free.

January 8th.—General condition improved.

January 23d.—Bowels much disordered; has offensive purulent discharge from both ears; syringed with boric acid solution.

January 27th.—Bowels now in good order, but child quite weak.

February 21st.—Has been constantly improving.

February 23d.—Discharged from hospital.

During her stay in the hospital this child's fever varied much, but was more or less continuous, with a somewhat gradual decline, and was never above 102.8° F.

CASE III.—Carrie H., aged eight years, admitted January 3, 1901. *Examination.*—Temperature, 101° ; pulse, 120; respiration, 32; diffuse pharyngitis with slight tonsillar enlargement; lymph nodes of neck not enlarged. *Skin.*—Whole body covered with a punctate eruption, dull scarlet in color.

Treatment.—Calomel; tepid bath every twelve hours; milk diet.

January 5th.—Scanty urine with few hyaline and granular casts; three hot baths in twenty-four hours, and body rubbed with ichthyol ointment (20 per cent.).

January 8th.—Fever ranges about 102° - 103° ; complains of pains in shoulders and arms; whiskey, one dram every three hours.

January 9th.—Temperature, 104° to 105.4° ; increase of pains in shoulders and fingers; finger joints of both hands swollen, red, and movement causes pain; urine still very scanty; child coughs quite a little, and complains of pain on coughing; lower lobe of left lung anteriorly shows distant breath sounds and diminished resonance; strychnin and whiskey used.

January 10th.—Temperature went to 106° at 6 P.M.; increase in cough; many moist râles heard in lower lobes of both lungs;

much difficulty in respiration; child complains of pain on breathing and coughing.

January 11th.—Fever lower this morning, but 106.2° at 9 P.M.; respirations shallow and vary from 38 to 44; has profuse diarrhea with yellow, slightly frothy stools; beta naphthol in three-grain doses given.

January 13th—Stools not much improved, and curds present. Medication: whiskey, aromatic spirits of ammonia, syrup of the chlorid of iron.

January 14th.—Child worse if possible; lies in a semi-conscious state with eyes partly closed, but takes medicine and nourishment fairly well; temperature below 101° .

January 19th.—Aromatic spirits of ammonia discontinued; temperature range 99° - 100° .

January 25th.—Gradually improving, but temperature 103.4° again this evening; urine dark, ammoniacal and contains much mucus.

February 15th.—Temperature of a septic type, 102° - 103° in the evening and normal in the morning, gradually improving. Medication: Quinin sulphat, two grains three times a day; other treatment discontinued.

February 17th.—Inunctions of guaicol in lanolin ordered.

February 20th.—Incised swelling in back at angle of right scapula and obtained much pus; temperature about same.

February 23d.—Discharged at mother's request.

The Diet Treatment of Epilepsy.—Bahnit (*Med. Press*, Nov. 13, 1901) advises the dietetic treatment of epilepsy and claims that by this method the number of epileptic seizures which occurred among the inmates of one institution was reduced from thirty to three per day. The points to be observed are: (1) Obtain absolute control of the habits and diet of the patient; (2) have the diet poor in chlorin; (3) replace the deficient chlorin by bromin which should be given in the food; he advises, for instance, making bread with potassium bromid instead of sodium chlorid. Those patients who did not receive bromin compounds, even though they were deprived of chlorin, did not show marked improvement.—*International Medical Magazine*.

ARCHIVES OF PEDIATRICS.

JULY, 1902.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

TREATMENT OF SUMMER DIARRHEAS.

There is now no doubt that the diarrheic conditions so frequent in children during warm weather are due to microbic agents. Prophylaxis then consists in the exclusion of germs, as far as possible, from the food and drink. In country places this means an exact knowledge on the physician's part of the milk that is being given to the child, its source and character. Any rumor of illness among the cows of a dairy must be the signal for the withdrawal of milk from the infant's food. In the city the physician should assure himself of the quality of the milk by knowing the general character of that furnished by different dealers, so that he may be able to direct mothers in their choice. While water should be given freely to children in the warm weather, and they should not have to submit to the

cruelty of having to take a full milk meal when they want only a drink, it seems advisable that the water should always, even where it is above suspicion for adults, be boiled for infants' use. If flies get into milk or water meant for the infant, it should not be used.

After the exclusion of germs, the most important phase of prophylaxis is the prevention of the development of a predisposition to diarrheic conditions. For this all irritant food must be avoided. Young children must not be indulged in table food. Especial care must be taken with uncooked fruit as it is often the initial factor in a severe diarrhea. Food that has been allowed to stand for some time in a dusty place, and then but slightly warmed, is another extremely dangerous element.

The resistive vitality of the child must be kept up to the highest pitch of efficiency. For this an abundance of fresh air, plenty of good, healthy sleep and a cool skin, on which a free perspiration is encouraged by frequent bathing, are the essential hygienic conditions. When the weather is very warm and the child is restless, especially if the skin be dry and hot, the morning bath is not sufficient, but the child should be bathed a number of times during the day. When children toss in their sleep in the summer time, sponging with cool water will always do more to quiet them than the meddlesome coddling to which they are subjected. Practically all children are overdressed in the summer time, and the family physician should see to it that many unnecessary garments are discarded. Comfort is quite as essential to the infant's as to the adult's health. Infants are much more liable to colds from excessive clothing than from its lack.

Principiis obsta, "stop the beginnings," is the golden rule for summer diarrheas. There is no such thing as a negligible diarrhea in the hot weather. No excuse like teething, or delicacy of health, or supposed hereditary tendency to gastrointestinal derangement must be allowed to make a distinct frequency of passages appear trivial to the mother, and especially to the physician. The slightest looseness of stools must be the signal

for prophylactic measures. The child's food must at once be reduced in amount. If mere reduction in the diet does not modify the diarrhea favorably in twelve hours then milk must be eliminated entirely from the dietary for a time. This seems a hard method of treatment to many and especially to young mothers. Hence it is often delayed in the hope that improvement of symptoms will take place without such an apparently radical proceeding. Milk is, however, a most favorable culture medium for the pathogenic bacteria of the intestinal tract. To continue its use is to feed these bacteria and not the child. This idea, if put forcibly before the mother, will do more to convert her to the necessity for the complete elimination of milk from the child's food than almost any amount of direct advice or persuasion.

As to what shall replace milk in the child's food there is some difference in opinion. Egg water introduced by the French pediatricians has been very popular until the last few years. It is well known, however, that while this is not so favorable a nutrient medium for bacteria as milk, most of the ordinary microorganisms suspected of causal activity during infantile diarrheas will grow on it. Of late the value of the cereals in preventing the multiplication of bacteria within the intestines has come to be generally recognized. On clinical grounds conservative observers like Jacobi recommended them many years ago. Scientific investigation has only come with its explanation of their favorable effect in recent years. Cereals set up an acid fermentation and acidity of the intestinal contents makes them an especially unfavorable culture medium for pathogenic bacteria. Barley gruel, then, or some similar preparation, makes the best substitute for milk. Whatever cereal is used must be well cooked. As a rule several hours of slow boiling are advisable and the modicum of time recommended for some of the much advertised cereals will always leave them extremely irritant for the delicate infantile gastrointestinal tract.

The medicinal treatment of the infantile diarrheas of hot weather has of late years become confessedly of less and less importance. At the beginning calomel and castor oil remove irritant material that is furnishing a soil for the growth of bacteria and so are distinctly useful. Calomel is also an efficient intestinal antiseptic. Other antiseptics and especially salol and its congeners of the coal tar group, not only do no good but are irritant to already inflamed structures and may induce kidney disease and so they should never be used. The astringent drugs must be used with great caution. They increase the irritation, tend to delay the passage of excrementitious material and thus favor the absorption of toxins from the intestinal tract. Only the insoluble bismuth compounds which act mechanically to prevent irritation can be recommended with confidence. They should be given much larger doses than is usually the custom. Not ten or twenty grain doses, but half drachm to drachm doses five or six times a day will accomplish the purpose intended. Opium is of service when the stools are so frequent as to be a source of great straining and progressive weakness. Except for movements at short intervals accompanied by tenesmus, opium must not be employed. Whenever decrease in the number of movements is followed by increase of the constitutional symptoms opium adds greatly to the danger of the case.

Irrigation of the colon has outlived the popularity it enjoyed a few years ago. It is never indicated except when the lower bowel is evidently the main site of the inflammatory process. The indications are foul smelling stools containing considerable mucus. Colon irrigation need never be practiced more than once or at most three times a day. Frequent large injections do more harm than good. The temperature of the injection water should be varied so as to stimulate a prostrate or to act as a sedative for a febrile patient.

In general it may be said there is no specific treatment for summer diarrhea. The secret of decreased mortality from the

disease is prophylaxis and very early treatment by limitation of the diet. As the disease progresses symptoms must be met as they arise with reference not to routine therapeutic principles but individual idiosyncrasies.

THE AMERICAN PEDIATRIC SOCIETY.

The Boston meeting of the Society was a success in every way. Not only was the attendance large and the scientific work of the Society of a high order, but there was a happy mingling of hospitality from the Boston members who gave a welcome never to be forgotten. At the close of the meeting a loving cup was presented to Dr. T. M. Rotch.

The presentation was accompanied by the following graceful remarks by Dr. Leroy M. Yale, of New York:

"I have been asked to say a few words in behalf of those members of the Society who have come from other cities. I am sure that they will first wish me to try to express to you how much they enjoyed their visit to Boston. Those of us who have been here before, of course, knew what a pleasure was before them. For myself, I always like to come to Boston, for I acquired the Boston habit very early in life. This was the first considerable city I ever saw, and I have never since seen one so splendid as it then seemed to my country-bred eyes.

"But it was quite another Boston, small in area but high in spirit. Think of it—'The Autocrat' and 'Hiawatha' had not yet charmed it. Its blood had not yet boiled at the extradition of Burns. The hero whose splendid memorial graces the Common was still a schoolboy. Even now I like to orientate myself by beginning at Boston Stone, at Copp's Hill or the Old North Church, before I wander out to the Public Garden, where the little waves beating upon its rip-rap edges seemed there to

end the town, just where a new city—a new world almost—now begins.

"What impresses a visitor from another city is that all this change and increase is not mere expansion, but growth. Many towns seem to spread indiscriminately, like a neoplasm, but Boston has developed structurally. With a foresight unexampled, so far as I know, in this country, its growth has been planned for in such a way that it may go on increasing normally, healthfully and beautifully for generations. I have thought that the original restricted domain of Boston has proved to be an advantage. It promoted unity of action, and when the town felt the need of more land it put it just where it wanted it, instead of taking any ready-made adjacency.

"But with all this splendid material growth, I find some things unchanged. Boston still thinks as of old. Still she responds as quickly as ever to the touch of an idea; still is the spirit of light and leading in her; still we feel *ex oriente lux*; still is her hospitality as rich as ever. I felt it when the driver of the Charlestown 'Hourly' picked me up—an eight-year-old boy, who had bankrupted himself at Martin L. Bradford's tackle shop beside the Old South Church; took my pole on top of the bus and gave me a free ride on the footboard behind. I felt it when the men who were then giving Boston her medical name treated me, a young graduate, as if I were 'somebody in particular.' Never has it been more evident than now, when you have not only shown us hospitality, but have given us a lesson in the art of showing it. So gracefully have you done it that we have taken with pleasure an amount of attention which, when we read it in the program, seemed appalling.

"Dr. Rotch, we desire to offer you this loving cup as a token of our regard. We offer it to you not only as our host; I should like to tell you some of the other reasons. But if there is anything that is hard to speak and hard to hear it is praise to one's face. It will please you, I am sure, to know that the sug-

gestion to give it met with eager, immediate and unanimous response. It will strengthen your hands to know that of those here, gathered from this wide country of ours, there is not one who does not feel that he does his daily work with greater ease and with greater certainty because of your labors.

"We have filled this cup with a 'modification' after an old prescription, a native of Northeastern Massachusetts. We trust that its 'percentages' are judicious. As we hand it to you, and as it passes from lip to lip, we pledge you as our comrade, as our master and as our friend."

A Case of Craniectomy.—By Dr. I. I. Vystavkine (*Chirurgia*, February, 1902).—The patient was a boy aged fourteen years. At the age of five he received a blow on the head from a horse's hoof, which was not followed by any serious consequences. A month before admission he was thrown from a horse and dragged for a considerable distance along the ground with one foot in the stirrup. He was found unconscious with several wounds in the head, and for four days he did not regain his senses. On his return to consciousness he was very much depressed, gloomy and sulky, and had lost his memory completely. On examination he had the expression of dementia, and a well-marked depression of the skull was noticed in the left temporal region, including about fourteen square centimetres of the anterior portion of the temporal bone. The diagnosis of a healed fracture of the temporal bone was made. The operation consisted of the excision of the flap of tissue down to the bone, including the periosteum. Four openings were then drilled into the skull, one at each corner of the depression, and the intervening bone was sawed from within outward through these openings. The depressed piece of bone was removed, the dura exposed and found covered with a layer of blood-clot. The dura was incised and about two teaspoonfuls of clear yellow fluid escaped. The skin-periosteal flap was replaced and sutured. The recovery was uneventful, and gradually the boy regained his lost mentality.—*The New York Medical Journal.*

Society Reports.

MINUTES OF THE FOURTEENTH ANNUAL MEETING OF THE AMERICAN PEDIATRIC SOCIETY.

Held at Boston, Mass., May 26, 27, and 28, 1902.

The meeting was called to order by the President, Dr. W. S. Christopher of Chicago. The minutes of the thirteenth annual meeting were approved as published in ARCHIVES OF PEDIATRICS.

The following members were present: G. N. Acker, M.D., Washington; S. S. Adams, M.D., Washington; A. D. Blackader, M.D., Montreal; W. D. Booker, M.D., Baltimore; E. M. Birmingham, M.D., Boston; A Caillé, M.D., New York; W. L. Carr, M.D., New York; H. D. Chapin, M.D., New York; W. S. Christopher, M.D., Chicago; A. C. Cotton, M.D., Chicago; F. M. Crandall, M.D., New York; D. L. Edsall, M.D., Philadelphia; F. Forchheimer, M.D., Cincinnati; R. G. Freeman, M.D., New York; E. E. Graham, M.D., Philadelphia; J. P. C. Griffith, M.D., Philadelphia; S. McC. Hamill, M.D., Philadelphia; L. E. Holt, M.D., New York; F. Huber, M.D., New York; H. Jackson, M.D., Boston; A. Jacobi, M.D., New York; C. G. Jennings, M.D., Detroit; C. G. Kerley, M.D., New York; H. Koplik, M.D., New York; C. F. Martin, M.D., Montreal; D. J. M. Miller, M.D., Philadelphia; F. G. Morrill, M.D., Boston; F. A. Packard, M.D., Philadelphia; C. P. Putnam, M.D., Boston; T. M. Rotch, M.D., Boston; A. Seibert, M.D., New York; I. M. Snow, M.D., Buffalo; C. W. Townsend, M.D., Boston; A. H. Wentworth, M.D., Boston; J. P. West, M.D., Bellaire; J. C. Wilson, M.D., Philadelphia; L. M. Yale, M.D., New York.

FIRST SESSION.—MAY 26.

Held at the Somerset Hotel.

The annual address of the President, entitled "Development, the Keynote of Pediatrics," was read by Dr. W. S. Christopher of Chicago.

Dr. F. Huber, of New York read a paper entitled "Intussusception; Clinical Remarks," and also one by Dr. J. F. Erdmann, of New York, entitled "Surgical Comments."

Discussion by Drs. Caillé, Packard, Jacobi, Putnam, Griffith, Chapin, Adams, Christopher, Blackader, Rotch and Huber.

Dr. S. S. Adams, of Washington, read a paper entitled "Healed Septic Endocarditis."

Discussion by Drs. Crandall, Wilson, Wilson, Miller, Jacobi, Seibert and Adams.

SECOND SESSION.—MAY 26.

Held at the Country Club.

Dr. J. L. Morse read a paper entitled "A Case of Chondro-dystrophy Fetalis," and exhibited photographs.

Discussion by Drs. Jacobi, Griffith, Holt, Christopher and Morse.

Dr. F. M. Crandall read a paper entitled "The Management of Rheumatic Children."

Discussion postponed until evening.

THIRD SESSION.—MAY 26.

Held at the Medical Library.

Discussion of Dr. Crandall's paper by Drs. Chapin, Jacobi, Carr, Packard, Blackader, Koplik, Wilson and Crandall.

Dr. J. P. C. Griffith, of Philadelphia, read a paper entitled "Typhoid Fever in Children under Two and Half Years of Age," by himself and Dr. M. Ostheimer.

Discussion by Drs. Christopher, Morse, Holt, Seibert, Koplik, Freeman, Jacobi, Miller, Packard, West, Adams, Wilson, Rotch, Kerley, Blackader and Griffith.

FIRST SESSION.—MAY 27.

Held at the Medical Library.

Dr. A. Seibert, of New York, read a paper entitled "Typhoidal Appendicitis in Children."

Discussion postponed.

Dr. T. M. Rotch, of Boston, read a paper entitled "Presentation of Cases of Tuberculous Peritonitis" and showed patients.

Discussion by Drs. Adams, Acker, Forchheimer, Koplik, Chapin, Caillé, Cotton, Jacobi, Miller, Seibert and Rotch.

Dr. F. Forchheimer read papers entitled (a) "The Use of the Term Enanthem" and (b) "Some Remote Diseases Arising from Tonsillar Infection."

Discussion of the first paper by Drs. Caillé, Griffith, Wilson, Rotch, Seibert, Christopher and Forchheimer.

Discussion of the second paper by Drs. Jacobi, Freeman, Christopher, Jennings, and Forchheimer.

Dr. S. McC. Hamill, of Philadelphia, read papers entitled (a) "Report of a Case of Extreme Enlargement of the Spleen with Anemia; Autopsy" and (b) "A Case of Sinus Thrombosis Resulting in Extensive Cerebral Hemorrhage in an Infant Fifteen Days Old; Fusion of the Kidneys."

Discussion of the first paper by Drs. Wentworth, Martin, Christopher and Hamill.

SECOND SESSION.—MAY 27.

Held at 197 Commonwealth Avenue.

Dr. A. Caillé, of New York, read papers entitled (a) "Clinical Observations on the Management of Circulatory Failure in Acute Infectious Disease," with illustrations; (b) "Chronic Parenchymatous Nephritis in a Child Treated by Renal Decapsulation (Edebohl's Operation); "and (c) "Specimen of a Large Thymus Gland (Sudden Death)" with an exhibition of the gland.

Discussion of the first paper by Drs. Acker, Blackader, Kerley, Seibert, Jacobi, Cotton, Adams and Caillé.

Discussion on the third paper by Drs. Jacobi, Putnam and Caillé.

Dr. A. C. Cotton, of Chicago, read a paper entitled "Effects of Tight Diapers," and showed photographs and specimens.

Discussion by Dr. Rotch.

FIRST SESSION.—MAY 28.

Held at Eastern Yacht Club.

Dr. G. N. Acker, of Washington, read a paper entitled "Two Cases of Umbilical Fistula due to Tuberculous Peritonitis" and showed photographs.

Dr. C. G. Kerley, of New York, read a paper on "Diphtheria With and Without Antitoxin."

Dr. J. H. McCollom, of Boston, made "Some Remarks on Intubation in Diphtheria."

Discussion of both papers by Drs. Chapin, Caillé, Jennings, Buckingham, Cotton, Crandall, Adams, McCollom and Kerley.

Dr. I. M. Snow, of Buffalo, read a paper entitled "Tetany of the Type Called Pseudo Tetanus With an Illustrative Case of Diphtheria with Persistent Trismus and Opisthotonus."

Discussion by Drs. Jacobi, Koplik, Holt, Huber, Kerley, Griffith and Snow.

Dr. T. S. Westcott, of Philadelphia, read a paper entitled "The Management of the Percentages of Fat in the Feeding of Difficult Cases in Infants."

Dr. H. D. Chapin, of New York, read papers entitled (a) "Recent Investigations Upon the Proteids of Milk" and (b) "Local Variations in the Mortality from Summer Diarrhea."

Discussion postponed until afternoon.

SECOND SESSION.—MAY 28.

Held at Misery Island Club.

Discussion of Dr. Westcott's paper and of Dr. Chapin's first paper by Drs. Holt, Buckingham, Miller, Cotton, Koplik, Townsend, Edsall, Freeman, Wentworth, Griffith, Westcott and Chapin.

Discussion on Dr. Seibert's paper on "Typhoidal Appendicitis" postponed from May 27, by Drs. Caillé and Seibert.

Discussion on Dr. Chapin's second paper by Drs. Seibert, Adams, Cotton and Chapin.

Dr. C. G. Jennings, of Detroit, read papers entitled (a) "A Case of Autointoxication with Unusual Urinary Findings," (b) "Notes on the Temperature Curve in Acute Croupous Pneumonia, with charts."

Discussion of the first paper by Drs. Edsall and Christopher, and of the second by Dr. Morrill.

Dr. W. L. Carr, of New York, read a paper entitled "Report of a Case of Pneumonia."

Discussion by Drs. Adams and Carr.

The following papers were read by title:

Dr. E. W. Saunders, of St. Louis, "Pilocarpin in Scarlet Fever and Diphtheria."

Dr. A. Jacobi, of New York, "Hemoglobinuria."

EXECUTIVE SESSION.—MAY 27.

The report of the Council was presented by its chairman, Dr. Blackader, and accepted.

On nomination of the Council the following officers were elected for the ensuing year:

President, - J. P. CROZER GRIFFITH, M.D., Philadelphia.

First Vice-President, HENRY D. CHAPIN, M.D., New York.

Second Vice-Pres., FRANK S. CHURCHILL, M.D., Chicago.

Secretary, - SAMUEL S. ADAMS, M.D., Washington.

Treasurer, - J. PARK WEST, M.D., Bellaire, Ohio.

Recorder and Editor, WALTER LESTER CARR, M.D., New York.

Member of the Council, F. A. PACKARD, M.D., Philadelphia.

Elected to membership, Alfred Hand, Jr., M.D., and W. Reynolds Wilson, Jr., M.D., of Philadelphia, and Henry L. K. Shaw, M.D., of Albany.

Place and time of meeting—*Washington, D. C., May 12, 13 and 14, 1903.*

Assessment for ensuing year—*Five dollars.*

The President was authorized to appoint delegates to the Fourteenth International Medical Congress.

The offer of ARCHIVES OF PEDIATRICS to print the Transactions was accepted.

An appropriation of \$25 was made for American Committee of the Fourteenth International Medical Congress.

An appropriation of \$200 was granted for the indexing of the Transactions and \$100 for publishing papers not inserted in Volume XIII. of the Transactions.

WALTER LESTER CARR, M.D.,

Recorder.

Current Literature.

DERMATOLOGY.

Rooth, James : Case of Nevus Pigmentosus et Verrucosus.
(British Medical Journal. No. 2156.)

A boy of twelve years applying for treatment for another condition was found to have a pigmented area which included the left thigh and inguinal region. In addition to the pigmentation, the affected surface was more or less warty. The condition represents a malformation of intrauterine origin which bears some relationship to the central nervous system since it occupies the region supplied by certain nerves—in this instance the anterior divisions of the second, third and fourth lumbar.

MEDICINE.

Guthrie, Leonard G. : Idiopathic or Congenital Hereditary and Family Hematuria. (*The Lancet.* No. 4105.)

One patient appeared to pass bloody urine almost from his birth. He was in perfect health otherwise, and came to consultation simply for bed-wetting. The case was under observation for three years and the urine was never free from blood. Albuminuria was present in quantities accounted for by the blood. None of the treatment employed was of any service except suprarenal extract. However, benefit was derived indirectly by treating the enuresis.

A sister of the preceding patient was similarly affected, but to a less degree. It was learned that the hematuria was distinctly a family malady, and thus certain articles of food or drink, such as black currants, claret, etc., could determine or intensify attacks in most of the members. In some of the patients the crises of disease were relatively few and far between.

Still, George F. : Some Abnormal Psychical Conditions in Children. (*The Lancet.* No. 4104.)

Purely psychical conditions only are considered and numerous cases of transient moral obliquity are cited in which apparently healthy boys had explosions of passion, violence, offenses against the person and property of others, sexual aberration and the like. In a large proportion of these cases there was a family

history of mental or moral obliquity, epilepsy, etc., and stigma of degeneration were equally common. It appears that children of this class tend to have an unusually large head circumference. Although organic disease may be wanting in these cases, functional ailments may often be encountered. One boy had a marked case of pica, and somnambulism, night-terrors, diurnal fecal incontinence and pathological restlessness are also mentioned in this connection.

Briefly speaking, these children are examples of defective moral control in association with apparently sound bodies and moral intelligence. The number of ways in which they are a menace to their playmates and others includes all the perils of bad precedent as well as actual physical harm. They are also a source of danger to themselves and tend to disgrace their families and become classed as criminals. The margin for improvement is at best narrow, but some of these children appear to recover from their condition, and we do not know how much may be accomplished in a given case by years of careful training and environment.

Stern, H.: The Obesity of Adolescence. (*The New York Medical Journal.* Vol. lxxv., No. 13.)

Metabolic obesity is that form abiding after individual development, and transitory or specific that which subsides with the approach of adult life. The former does not usually set in before the tenth or twelfth year, and the latter always appears with the approaching state of puberty. It is more common in girls, while the metabolic form is seen more often in boys, being due to excessive ingestion of nutrient, to insufficient oxidation, or to both; in exceptional instances it may be the consequence of a preexisting or an acquired systemic anomaly.

Transitory obesity of adolescence is a specific condition limited to that stage. It is caused by certain metamorphotic anomalies incidental to pubescence and disappearing before or at the completion of systemic development. Superalimentation does not play any part in its production. Anorexia is not infrequently met with. Diminished intra-organic oxidation causes specific obesity, and one of the anomalies underlying that condition is a retarded or otherwise perverted function of the thyroids. Most cases run an uneventful course. Circulatory disturbances are not very frequent and seem comparatively slight. The excess in absolute weight amounts on an average

to 25 or 30 per cent., but varies a great deal. Both forms demand treatment only when the overweight is so excessive as to interfere with the function of certain organs, or when grave concomitant disorders are present. In metabolic obesity preventive dietetic treatment will avert its formation or materially influence its progress. In some cases an increased amount of exercise, lung gymnastics, massage, hydratherapeutic and other measures must be resorted to in addition to the dietetic treatment. Medicines, if given at all, should be for the accompanying disorders only. In cases of transitory obesity demanding treatment, dietetic restrictions are not only superfluous in the vast majority of cases, but often cause lasting injury. The treatment should be directed to the complications and concomitant disturbances rather than to the obesity itself. If extreme and alarming, the latter may be treated by preparations of thyroid; which may be safely administered in tablet form combined with arsenious acid and adonidin. Physical treatment may be of benefit in individual cases.

Armstrong, Hubert: A Note on the Infantile Mortality from Tuberculous Meningitis and Tabes Mesenterica. (*The British Medical Journal.* No. 2156.)

Search through the autopsy records of the Liverpool Infirmary for Children shows that not a single death has occurred from tuberculous meningitis in the first year of life for at least seventeen years; while during the same period but one such infant is known to have died of tabes mesenterica. The inference is that deaths from nontuberculous meningitis, convulsions, etc., often pass for examples of the tuberculous form of meningeal disease, and that deaths from simple marasmus may be set down as due to tabes mesenterica.

Wynkoop, E. J.: Report of a Case Belonging to the Erythema Group or Henoch's Purpura, With Chronic Parenchymatous Nephritis—Autopsy. (*American Medicine.* Vol. iii., No. 18.)

A girl of thirteen years was healthy at birth, but when one week old a fine rash appeared all over the body, and the face became swollen. The symptoms disappeared in a few weeks, but returned five or six months later, the rash appearing in irregular blotches which have remained ever since. At the age of four years pains in the knees began, and later affected the legs and feet; there were also abdominal pain, nausea, vomiting,

and diarrhea. Bleeding from the nose and gums was never severe. The attacks of pain were sometimes accompanied by lessening or even suppression of urine; albumin, and, later, casts, appeared. The heart was enlarged; ascites and edema of the ankles were present. The purpuric spots recurred in successive crops every three or four days. The nephritis grew worse, uremic convulsions developed, and death followed. The autopsy findings were: pyelitis, chronic pleurisy, arteriosclerosis of the aorta, petechial hemorrhages in the stomach and bladder mucous membrane, and enlargement of the kidneys.

The case is to be grouped with the cases of exudation erythema classified and described by Osler, because of the recurring gastric crises, the varying skin eruptions, the arthritis and the nephritis.

The mother and grandmother both gave a history of urticaria.

Pollock, John: Mixed Scarlet Fever and Measles Infection. (*The British Medical Journal.* No. 2154.)

Of three children in a family, the eldest was stricken with scarlet fever and the second was believed for a short time to have the same affection. In a very few days the eldest child broke out with measles and the cutaneous lesions of the two diseases could be seen side by side. The second child at the same time developed typical measles, but in this case there was no actual association of scarlatina. The youngest child who had been sleeping with the eldest now came down with scarlet fever, the incubation period being three or four days, and one week later he, too, developed measles. As the second child was attacked by suppurative otitis media, it is very probable that he as well as the others had suffered from scarlet fever.

D'Astros, L.: Epistaxis in the Newly Born. (*Arch. de Méd. des Enf.* Vol. v., No. 4.)

In the newly born infant epistaxis may belong to one of three varieties. It may be due to a nasal infection—most frequently a coryza of syphilitic origin. The second variety occurs in the course of a grave general infection or toxemia, without any previous nasal lesion; syphilis may be the cause, and the epistaxis may be accompanied by other hemorrhages. Finally, epistaxis may appear to be of primary origin, but is really the first indication of a general infection, either syphilitic or septic. Thus epistaxis in the newly born is always a grave prognostic

sign, not in itself, for it is usually small in amount, but because of the general infection of which it is an indication. It demands antiseptic medication of the nasal fossæ and nasopharynx.

Wilson, J. Clark: Case of Scurvy with Well-Marked Purpura. (*The British Journal of Dermatology.* No. 162.)

A boy, thirteen years old, became ill and developed spongy gums followed by a purpuric rash. It was found that he had generally abstained from vegetables which he disliked. He was placed upon a diet of green food and lemons and began to improve forthwith although there was a further outbreak of purpura, which showed a marked tendency to linger. The boy had not fully recovered at the time of writing.

Fournier, E.: The Venous Dystrophies of Hereditary Syphilis. (*Rev. d'Hyg. et de Méd. Inf.* Vol. i., No. 1.)

Hereditary syphilis is the cause of congenital venous dystrophy in the shape of dilatation and varicosity of any of the superficial veins. In children these occur in very young subjects only, and they have been observed only on the head, involving the superficial branches of the external jugular vein in three regions: those of the parietal and superficial temporal veins, of the frontal branches of the facial vein, and of its branches at the inner angle of the eye. All the cases observed had other stigmata of hereditary syphilis or were the children of syphilitic parents. No similar lesion existed on the rest of the body in these young subjects. The condition may possibly be due to a congenital feebleness of the vascular walls and an insufficiency of the vein valves, which condition predisposes to varicosities. The dilatations disappear. If they occur on the head of the newly-born, congenital syphilis is their probable cause. In adults tainted with hereditary syphilis, varicosities often develop on the trunk and extremities and have the appearance of having begun at any early age. Syphilis is an important etiological factor in the production of such phlebectasia.

Zahorsky, J.: Mucomembranous Colitis in Children. (*Interstate Medical Journal.* Vol. ix., No. 5.)

Two cases are reported, the elder of which, in a four-year-old girl, was cured by the use of Fowler's solution and cold water enemata. The second case was a boy seven months old who remained under treatment a whole year, and was finally cured. The author concludes that mucomembranous colitis is a rare disease in children, that there is no evidence that any

other special disease exists in children to which the name mucous disease may be applied, and that the term mucous disease should be dropped. The pathologic process and clinical history are similar in children and in adults.

Allen, Seabury W.: A Congenital Malformation (*Boston Medical and Surgical Journal*. Vol. cxlvi., No 14).

The subject, aged fourteen, was a museum freak. While perfectly well formed in general he had an accessory lower extremity which was normal and under voluntary control and which also bore a highly rudimentary fourth lower extremity attached to the femur. In addition to normal genitals the boy also had an accessory penis and testicles. The former, however, was imperforate, while the scrotum was cleft so that the type of the female organ was slightly approximated. A skiagram shows more or less duplication of the bony pelvis, [while the author does not attempt to classify this monstrosity, it clearly belongs among the dilecani—double monsters with duplication of the pelvic extremity of the body.—Ed.]

Lartigau, A. J.: The Bacillus Coli Communis in Human Infections. (*The Journal of the American Medical Association*. Vol. xxxviii., No. 15.)

From a very thorough review of the literature as well as from his own experience the author reaches the following conclusions:

1. The bacillus coli communis is widely distributed in the normal body and in nature. It is usually present as a saprophyte in all parts of the alimentary canal, and may also be present as such in the lower portion of the common bile duct, on the skin, especially in the neighborhood of the mouth and anus, and in the anterior portion of the urethra and vagina.

2. The bacillus coli communis may, under what seem to be normal conditions, be carried during life from the intestine to healthy viscera. This invasion takes place from the intestine into the abdominal viscera, more especially the liver and kidneys, through the portal circulation. It is possible that similar invasions may take place from other parts, especially the mouth, pharynx, etc. Further, it is probable that under similar conditions to which these invasions occur, bacteria may sometimes reach the systemic circulation.

3. Agonal and post mortem invasion of the tissues of the body is common, occurring with great frequency under the

most diverse circumstances with or without apparent lesion of the mucous membrane of the intestine.

4. The virulence of the bacillus coli communis is influenced by at least two factors: (1) changes in the physiologic activities of the intestine; (2) growth in new environments.

5. The rôle of this organism as a primary inciting factor in infection is infrequent. It is as a secondary invader of tissue previously occupied by microorganisms, or of tissue already injured from other causes that it claims our chief attention.

6. The bacillus may induce inflammatory lesions, mainly suppurative, in the body tissues generally; the infection may originate in the intestine.

7. Its rôle in acute inflammatory lesions of the intestine, more particularly of the appendix, peritoneum, and urinary passages, has been generally overestimated. Whilst it may be the primary inciting factor, other organisms usually take this part, the bacillus coli communis more commonly acting as an accessory factor.

8. It is a factor of importance in the incitement of cholelithiasis.

Armand-Delille P.: Bacteriological Examination of the Throat in Measles. (*Arch. de Méd. des Enf.* Vol. v., No. 4.)

In 75 cases of measles bacteriological examinations of the throat were made to determine the presence of the diphtheria and pseudodiphtheria bacillus. In 42 per cent. of the cases an organism having all the cultural and morphological characteristics of the Klebs-Löffler bacillus was found, but it was rarely virulent except in cases of complicating croup or psuedomembranous angina. Symptoms of croup may occur in measles patients and neither diphtheria nor pseudodiphtheria bacilli be found. The morphology of the baccilli and their growth on serum, agar and broth give no indication of their virulence or nonvirulence.

As a prophylactic and therapeutic measure it is well both in hospital and in city practice to give every measles patient a preventive dose of antidiphtheritic serum.

Williamson, R. T.: Acute Anterior Poliomyelitis. (*The Practitioner.* Vol. Ixviii., No. 5.)

The febrile symptoms at the onset of acute anterior poliomyelitis, the relation of the lesions to the anterior arteries of the cord, the vascular changes, the occasional occurrence of epi-

demics, and the result of experiments on animals, all appear to suggest the explanation that the disease is due to a toxin produced by the action of a microorganism, the exact nature of which remains to be discovered.

Treatment at the onset should be rest in bed, on the side or in the prone position rather than on the back. Mild purgation and diaphoresis are of value, but the warm bath is not advisable; sodium salicylate may be of service during the febrile stage. Later, electrical treatment, massage and gymnastics should be tried; and after some years, when there is no hope of further improvement, orthopedic surgery should be considered. Tendon transplanting or grafting has been used with success.

Esser, J.: Rupture of the Ductus Arteriosus. (*Arch. f. Kinderhk.* Vol. xxxiii., Nos. 3-6.)

Two cases are reported, one occurring in an infant born in a condition of asphyxia and dying within a few hours. At autopsy the ductus arteriosus showed a transverse rupture extending about half way around its circumference, and from it, for a distance of four or five mm., the wall was split as in a dissecting aneurysm. The rent was filled with coagulated blood. The second case was that of an apparently healthy child who developed symptoms of scleroma on the third day and died on the sixth day after birth. Two tears were found in the wall of the ductus arteriosus near its opening into the pulmonary artery. The lungs showed hemorrhagic infiltration. In the other case there were emphysema and small hemorrhages. The ruptures were apparently due to an abnormally increased pressure in the pulmonary artery, brought about by increased resistance in the lungs caused by emphysema in one case and by hemorrhages in the other.

Tredgold, A. F.: Remarks on the Subsequent History of Children Born Whilst the Mother was Insane. (*The Lancet.* No. 4107.)

Of thirty-eight children born of mothers insane at the time, thirteen lived and grew up sound in mind and body while the balance died within the first three years of life, and those that survived for a sufficient time exhibited some mental affection. Generally speaking 50 per cent. of these children die during the first year of life. Nevertheless this heavy death rate cannot be connected outright with the insanity of the mother. If we divide all the material into two classes, viz.: simple (gestational) insanity of

the mother and insanity as a family trait, with or without the presence of alcoholic or consumptive inheritance, we shall see that the great majority of the first class survived, while by far the greater number of the second class perished. In other words, simple insanity or gestation cuts little figure in the child mortality, but a mother of actual insane stock tends to bear a perishable type of child. This species of insanity of the mother need not be inherited, but may be acquired as a result of alcoholism or tuberculosis. In any case it is not gestational insanity in the strict sense of the term, in which the alienation is believed to be brought about solely by the pregnant condition.

To conclude, the mental and physical condition of the child is in no wise influenced by the fact that the mother was insane during pregnancy; nor by the type or duration of the attack, age of mother or even the fact of previous attacks of insanity. On the other hand the state of the child is the direct result of actual morbid heredity.

SURGERY.

Anderson, A. R.: Removal of a Nail from the Right Bronchus of a Child Aged Two and a Half Years. (*The British Medical Journal.* No. 2154.)

The nail had been swallowed six months before the case came to consultation. The principal symptom caused by the foreign body was cough, although the general condition had become somewhat cachectic. Röntgen diagnosis revealed the shadow of a large nail to the right of the middle line of the thorax. After the general health had been improved high tracheotomy was performed. The nail could be felt with a probe but could not be engaged with any pattern of forceps. Finally by the aid of the so-called "gallstone forceps" the foreign body, very rusty and covered with mucus, was brought away. The child made a smooth recovery and the author highly recommends the instrument which proved of so much value although not designed for this purpose.

Le Breton, Prescott: The Treatment of Rotary Lateral Curvature of the Spine. (*Buffalo Medical Journal.* No. 667.)

Recumbency is of value as an adjunct, and until a patient has become so strengthened by exercises that she can voluntarily hold her corrected position all day she should have an interval of recumbency after each meal in addition to ten hours'

sleep. Sayre's suspension apparatus may be employed once or twice daily. The principal reliance in all flexible cases is gymnastics which often alone suffice for a cure. They should consist of both special exercises as described by various orthopedists and ordinary calisthenics. Permanent immobilization as by a plaster of Paris jacket is seldom indicated at present but the so-called corrective jacket, to be worn for a few hours daily is of much use, both for temporary support during the strengthening period and for permanent correction. Finally in rigid cases force becomes requisite to secure improvement. The screw-pressure machine is advocated for this purpose. This apparatus has undergone many improvements, the latest having been at the hands of Weigel (see *Journal of Physical Therapeutics*, October, 1901).

The muscles of the back improve under daily applications of the faradic current, which with massage, will often afford relief in hopelessly irremediable cases. Tenotomy of the dorsal muscles has become obsolete, but resection of overlapping ribs is sometimes a servicable procedure.

Owen, A. Lloyd: A Case of Traumatic Dislocation of the Hip in a Boy Aged Six Years. (*The Lancet.* No. 4101.)

While in the act of kicking a ball, the boy slipped and he fell heavily to the ground with both legs in a position of abduction. Examination soon after the accident showed that the right thigh was partly flexed, adducted and rotated inward, or in other words in the position of dorsal dislocation of the hip. The great trochanter was above Nelaton's line and the head of the femur could be felt under the gluteal muscles as the thigh was rotated. Reduction was effected under chloroform by the customary maneuvre (flexion, circumduction and extension of the thigh) on the first trial, the patient was kept in bed a fortnight, wearing a long listen splint and after a week of passive motion was discharged perfectly cured. This accident in the very young is excessively rare.

Blodgett, W. E.: Excision of the Hip for Congenital Dislocation. (*Boston Medical and Surgical Journal.* Vol. cxlvii., No. 17.)

An attempt at bloodless reposition having failed, the patient, a twelve-year-old girl, was placed in bed with a fifteen pound traction until an open operation was finally decided upon. The neck of the femur was found in extreme coxa vara, while the

head was altogether wanting. The neck was removed by the chisel, the capsule sutured and light extension made in connection with the use of sand-bags. Ultimately the patient was discharged on crutches, with a plaster of Paris spica and a high sole. The removal of the neck of the femur was followed by two inches of shortening. The permanent flexion originally present was reduced by treatment from 25° to 10°; permanent adduction from 15° to 5°; permanent internal rotation from 40° to 5°.

When the plaster of Paris was removed the gait became affected unfavorably. The home treatment of the patient was to consist of movements calculated to stretch the adduction (which may subsequently require division). The high sole and crutches are to be discarded eventually.

HYGIENE AND THERAPEUTICS.

Netter: Preventive Injections of Antidiphtheritic Serum in Families. (*La Presse Médicale.* No. 33. 1902.)

Preventive inoculations were made in more than 2,500 cases without any untoward results, and an immunity was conferred lasting from the second to the twenty-eighth day. Comparisons were made between families whose members were given preventive doses after the appearance of a case of diphtheria in one of their number, and other families not so treated. The latter showed a larger number of secondary cases with eighteen deaths, while none of the inoculated families had a fatal secondary case. The disease proved to be much milder in patients who had received an immunizing dose of antitoxin.

Preventive inoculation is to be universally recommended, as it is without danger and is a very valuable method of defense against diphtheria.

Southworth, T. S.: The Modification of Breast-Milk by Maternal Diet and Hygiene. (*The Medical Record.* Vol. lxi., No. 17.)

A case is detailed in which gastrointestinal disturbance in an infant was cured by improving the mother's milk by means of a liberal diet of plain nutritious food and cow's milk, thin, well cooked and salted yellow corn meal gruel, and the substitution of cracked cocoa for coffee. The maternal anemia was treated with iron, laxatives and exercise in the open air.

While it is apparently true in a relatively small proportion of cases that children can be reared as successfully upon the various forms of substitute feeding as upon that provided and adapted by nature, it may never be true of the great majority of bottle-fed infants. These are more liable and more exposed to digestive and other disturbances than their nursing contemporaries, and their nutrition is, as a rule, actually if not apparently below that of the breast-fed child. They are also more often affected with rickets, and succumb more easily to acute diseases. The mother's hearty cooperation is necessary to build up and maintain the secretion of the mammary glands, by measures which are distinctly, though perhaps remotely, life-saving for the children.

Kerley, C. G.: A Further Contribution to the Study of Summer Diarrhea. (*New York Medical Journal.* Vol. lxxv., No. 17.)

During the summer of last year 127 cases of diarrhea were treated at the out-patient service of the Babies' Hospital. Only 7 were over three years of age. Of 97 followed to the end of the illness 11 died, the disease having lasted from two days to two months. Work among this class of patients shows that summer diarrhea may be prevented in a large degree by good milk properly given; a large mortality is to be prevented by discarding all forms of milk after the first symptom of gastrointestinal derangement, and until the stools approximate the normal. This may mean a non-milk diet for from forty-eight hours to several weeks. Cereal waters and gruels are the best substitute for the milk; beef-juice or broths may be added to vary the diet. Alcohol should not be given, because it irritates stomach and kidneys. White of egg mixture has also been discarded. Dextrinized gruels are of value; dextrinization permits of greater concentration of the nourishment. Boiled water is given at any time. Calomel is given in non-urgent cases with vomiting, castor oil in acute septic cases with stomach involvement. Bismuth subnitrate in ten-grain doses is valuable, and is continued until the child is ready for milk, and then in diminished doses until full feeding is possible. Opium is indicated for pain, tenesmus and frequent stools. Irrigation of the colon must not be overdone; once in twelve hours is sufficient. The cases which are benefited by the washing are those with a moderate number of green, mucous stools with or without blood.

Treatment of Diphtheria with Antitoxin. (*The Journal of the American Medical Association. Editorial.* Vol. xxxviii., No. 16.)

A study of the cases of diphtheria treated in the municipal hospital of Mühlhausen shows a decline in the mortality rate from 53.4 per cent. in 1892 to 18.7 per cent. in 1900, while the cases were more severe in the latter year than at any time in the last twenty years. A large reduction in the number of cases of laryngeal diphtheria requiring operation was noted after the institution of antitoxin treatment.

The antitoxin of diphtheria must be considered one of the few and one of the most important and most reliable specifics in therapeutics. To be most effective it must be employed early and in sufficient dosage. No seriously unpleasant secondary results need be feared, and a still further reduction of the mortality from diphtheria may be looked for.

Josias, A.: The Treatment of Pulmonary Tuberculosis in Children by Muscle Juice and Raw Meat. (*Rev. d'Hyg. et des Méd. Infantiles.* Vol. i., No. 1.)

The meat juice is prepared by macerating beef for three quarters of an hour with one quarter of its weight of water, and then expressing the fluid, obtaining about 14 to 20 c.c. of juice from 100 grammes of meat. From 100 to 200 grammes of raw beef, minced, was given to the tuberculous patients daily, besides the juice from 500 grammes. All other treatment was stopped. Twenty-four cases were treated in this way, with the result that 6 were cured, 6 were improved, 6 became worse and 6 died. Of the recoveries 4 were in the first and 1 each in the second and third stages of the disease, while 5 of the deaths occurred in the third and 1 in the second stage. It seems that so long as one is dealing with lesions caused by the tubercle bacillus alone, the raw beef treatment may cause great improvement and the patient may recover, at least clinically. But when secondary infection has occurred with softening and cavity formation, then the treatment is exceptionally followed by recovery, sometimes by improvement, but most frequently by no appreciable result.

It is the general condition of the patient which regulates the prognosis in the advanced cases; if it is good, there is hope, even if the tuberculosis be extensive. The raw meat seems to act by increasing the strength and resistance of the body.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

AUGUST, 1902.

[No. 8.

Original Communications.

A CASE OF CHONDRODYSTROPHY FETALIS.*

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John N. was brought to the Boston City Hospital when two months old and was turned over to me by the courtesy of Dr. F. B. Lund.

FAMILY HISTORY.—His parents were Italians, well, and of fairly good habits. There had been no history of such deformities in either family. There had been no miscarriages. The first child weighed twelve pounds, and was born dead after a severe instrumental delivery. The mother gave a history of seeing a dwarf while carrying this, the second child.

PERSONAL HISTORY.—He was born at full term, feet first, before the arrival of the doctor. Except for his deformities he seemed normal. He was given only the breast and, although he had not gained rapidly, he had had no marked disturbances of the gastroenteric tract. He cried a good deal and was brought to the hospital because of an inguinal hernia.

PHYSICAL EXAMINATION.—He was small, weighing only six pounds, two ounces. The flesh was fairly firm and the skin and subcutaneous tissues normal in character. He seemed as intelligent as the average baby of his age.

The most striking thing about him was the comparative shortness of the extremities, especially of the legs. (See Fig. I.)

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

His measurements were as follows:

Length—Vertex to sole.....	42	cm.
Vertex to navel.....	25	"
Vertex to anterior superior spine.....	28½	"
Anterior superior spine to sole.....	13½	"
Head—Diameter—Glabella-occiput	10	"
Bitemporal	9	"
Biparietal	11	"
Circumference—Glabella-occiput ..	33	"
Occipito-frontal	33½	"
Neck—Circumference	18½	"
Chest—Circumference at nipples.....	30½	"
Abdomen—Circumference at navel.....	30½	"
Pelvis at crests.....	26	"
Extremities—Arm—Acromion to external condyle.....	7	"
Ulna	7	"
Leg—Trochanter to external tuberosity (lowest portion).....	6½	"

The bridge of the nose was depressed, but possibly not beyond normal limits. The frontal suture was open about half way down the forehead. The coronal suture was open nearly to the level of the eyebrows. The frontal bones were of normal density. The parietal bones were prominent and of normal density. Their posterior borders were thicker than normal. The back of the head was flattened. No bony structure could be felt in the occipital bone above the protuberance. The eyes were normal except for slight exophthalmos. There were no snuffles. The tongue was small. The neck not unusually short. The ears were normal. Nothing abnormal was detected about the thyroid. The clavicles were small. There was very slight beading of the ribs. The scapulae were normal. There was nothing abnormal about the spine. The heart and lungs were normal. There was nothing noticeable about the abdomen except a slight umbilical hernia and a large left inguinal hernia. The liver was normal. The spleen was not palpable. The feet and hands were normal in shape but unusually small. The extremities were short, especially in the thighs and upper arms. The X-ray photographs show the condition of the bones better than any description. (See Figs. II., III., IV.)

The humerus felt at least 2½ cm. thick. The rotation of the radii was normal. All motions at the wrists were normal, as were

those of the hands. There seemed, however, to be a tendency to keep the hands flexed at the wrists with the fingers extended.

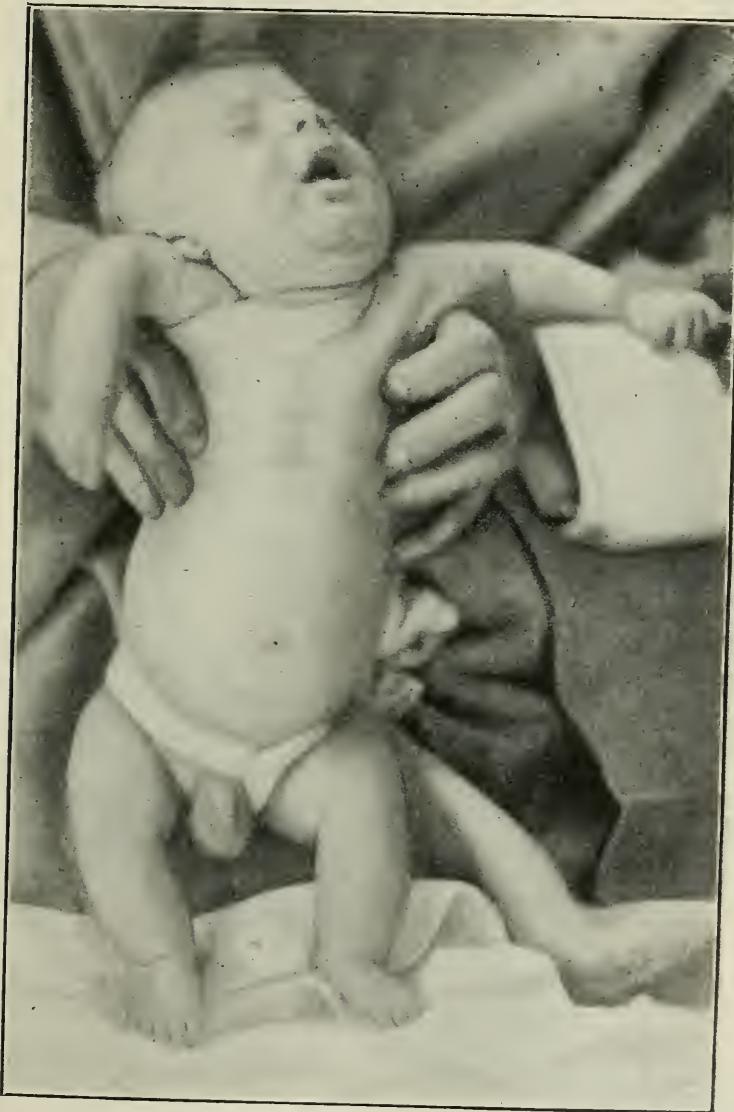


FIG. 1.—PHOTOGRAPH SHOWING THE SHORT EXTREMITIES.

Flexion at the hips was normal, but extension was somewhat limited. He lay with the thighs rotated outward and somewhat



FIG. II.—X-RAY PHOTOGRAPHS OF THE LEFT ARM.

flexed. The trochanters were easily made out. The patellæ were very small. Extension at the knees was a good deal limited and the knees were held somewhat flexed. The thighs and legs were held almost in the position of a circle. It was impossible to distinguish the separate bones in the legs. The motions at the ankles and of the feet were normal.



FIG. III.—X-RAY PHOTOGRAPHS OF THE RIGHT ARM.

There was a slight, general enlargement of the lymph nodes.

He died of some enteric disease when four months old. Unfortunately an autopsy was not obtained.

CLASSIFICATION.—The class of cases to which this belongs has been described under many names, among which may be mentioned fetal rickets, osteogenesis imperfecta, achondroplasia and



FIG. IV.—X-RAY PHOTOGRAPH OF THE LOWER EXTREMITIES.

chondrodystrophy fetalis. In a general way, in these cases, the trunk is normal, the extremities short and deformed, the head large and the bridge of the nose flattened. Although a considerable number of cases has been thoroughly worked up, both macroscopically and microscopically, by competent observers, no scientific classification on pathological lines is at present possible. While the pathological lesions in the different specimens resemble each other in a general way, no two cases show exactly the

same changes. Certain points, however, seem pretty well established.

PATHOLOGY.—The most important pathological process is, in brief, a disturbance of the normal process of ossification of the primary cartilage. It takes place early in fetal life, probably most often between the third and sixth months, and has ceased before birth. Hence, chondrodystrophy fetalis seems the most suitable and comprehensive name to apply to it. Kaufmann has described three main types of fetal chondrodystrophy: Chondrodystrophy hypoplastica, chondrodystrophy malacica and chondrodystrophy hyperplastica. In chondrodystrophy hypoplastica the principal trouble is a simple failure of development of the cartilage; in chondrodystrophy malacica there is an abnormal softening of the cartilage and in chondrodystrophy hyperplastica there is an extremely irregular and immoderate development of the cartilage in all directions. Osteoporosis or osteosclerosis may occur as complications in any case. Fractures may also increase the deformities.

As the pathological process usually affects endochondral ossification only and is active only during the earlier months of fetal life, only those bones are involved in which this method of ossification normally takes place at this time. In them, however, the process is most definite and universal. Those bones which are formed entirely in membrane and those which, though formed in cartilage, remain entirely, or almost entirely, cartilaginous until the latter part of intrauterine life, are almost never involved. The periosteal formation of bone goes on, moreover, normally or more actively than usual. These facts explain the distribution and, to a certain extent, the character of the deformities seen in these cases. It is for these reasons that the bones of the upper part of the cranium, of the trunk (except the ribs) and of the carpus and tarsus are normal, while those of the base of the skull and of the pelvis as well as the ribs and the long bones of the extremities are deformed. Certain peculiarities seem worthy of more detailed consideration.

Head.—The flattening of the bridge of the nose is due to the shortening of the base of the skull. This shortening may be due either to premature tribasilar synostosis or to imperfect development of the basal cartilages. The increase in the size of the cranium is partly apparent and partly real; apparent because of the small base, and real because of the larger amount of room

required in the cranium by the brain on account of the small base.

Thorax.—The flattening of the sides of the chest seen in some cases is due to the arrested development of the ribs. The costal cartilages are normal. The beading of the ribs is due either to periosteal overgrowth at the end of the diaphysis forming a cup-shaped mass around the epiphysis or to the displacement forward of either cartilage or rib by an asymmetrical development resulting from the abnormal folding-in of the periosteum.

Pelvis.—The pelvis is, as a rule, contracted and flattened. This is due to the abnormal ossification of the innominate bones. The growth of the sacrum and coccyx is not interrupted.

Extremities.—The long bones of the extremities depend upon cartilaginous ossification at the junction of the epiphyses and diaphysis for their growth in length during intra- as well as extra-uterine life. Any arrest of this process results, therefore, in shortening of the extremities. In chondrodystryph the chief pathological changes are at the line of ossification. The most important of these are in the columnar zone, which is absent or defective. Growth in length is thus prevented. There is, in addition, in some cases, a fibrous ingrowth of the periosteum between the epiphyseal cartilage and the diaphysis. This prevents, of course, any further growth in length at this point.

The shafts of the long bones are almost entirely composed of periosteal bone. This is often excessive and not infrequently abnormally hard. The medullary canal is sometimes diminished in size or even replaced by hard bone. At the ends of the shaft the periosteal overgrowth may extend peripherally so as to form a cup about the cartilaginous extremity. This periosteal overgrowth is often mistaken during life for rachitic overgrowth.

Bowing of the long bones is common. The pull of the muscles accounts for this when the bones are softened. When they are hard the bowing is probably due to local intrusions of the periosteum which prevent regular growth, and to a resistance of the thick cartilages at the epiphyses to the growth of the diaphysis.

DIAGNOSIS.—It is evident that there is nothing in common between chondrodystryph and rickets except the macroscopical appearances. In them there is a marked resemblance. Microscopical examination, however, shows that the pathological changes which produce such similar appearances are radically different. For example, the enlargement of the ends of the long bones in rickets is due to the abnormal development of the epiphy-

seal cartilage; in chondrodystrophy it is due to periosteal overgrowth. Microscopically, in rickets, the proliferating zone is much wider than normal; in chondrodystrophy it is narrower than normal. In rachitis vascularization is marked; in chondrodystrophy it is not marked. The changes in the skull, as already noted, are different in the two diseases. In rachitis the bones laid down in membrane as well as those in cartilage are involved; in chondrodystrophy they are not. The term "fetal rickets" should not, therefore, be applied to this condition. It is possible, however, that true rickets may occur in intrauterine life, recovery taking place before birth. Such a process would deserve the name of "fetal rickets." Its occurrence seems hardly probable, however, as the time is very limited for the development and "cure" of rickets, even if of a mild type.

While there must be some doubt as to the existence of true "fetal rickets," "congenital rickets," that is, rickets beginning during intrauterine life and continuing into extrauterine life, undoubtedly occurs. The only question is as to its frequency. Kasowitz found evidences of rachitis in more than one-half of new-born infants, while Feyerabend found them in 69 per cent. of 108 cases. Unruh, moreover, claims that rachitis is always a congenital affection. Fétré and Finizo, on the contrary, of 475 new-born infants, found only three which showed clinical characteristics of rickets. Three others showed craniotabes. Fifty-two per cent. showed irregularities in the bones and sutures of the skull. They examined microscopically the bones of the skulls of six babies dead born or dead soon after birth. In none of them did they find rachitic lesions. They conclude that in the new-born, large fontanelles and wide sutures are not always indicative of rickets, and that in the majority of cases, at least, they simply indicate retarded ossification. Tschistowitch examined the skeletons of 100 infants dead at, or shortly after, birth. In no case did he find evidences of pure rickets. In thirteen there was some doubt as to whether there was syphilis or rickets or a combination of both. Fifteen cases showed syphilitic osteochondritis. He concludes that, histologically, rickets and syphilis have been often confused.

It has been assumed on account of the shortened base of the skull that chondrodystrophy and cretinism must be intimately related; in fact, some authors have gone so far as to say that chondrodystrophy is a manifestation of cretinism. Too much stress

has been laid on the shortened base of the skull, however, as it has been assumed that it must be due to basilar synostosis, and that that is pathognomonic of cretinism. Shortening of the base of the skull may, however, be due to failure of development as well as to synostosis. This is usually the case in chondrodystrophy and may also be the case in cretinism. The pathological changes in the long bones are dissimilar in the two diseases, and in chondrodystrophy other signs of cretinism are lacking. Stoeltzner, however, has reported a case in which the thyroid and tongue were enlarged and the subcutaneous fat tissues were hypertrophied. The extremities were short and microscopically showed dystrophy of cartilage. In this case, however, the dystrophy of cartilage seems better explained by a combination of the two conditions than as a symptom of cretinism.

Other evidence against any relationship between chondrodystrophy and cretinism is as follows: In no case have the parents of a case of chondrodystrophy been cretinistic. No case has as yet been reported in regions where cretinism occurs. Cases with chondrodystrophy have, however, borne children with the same disease. In cretinism the intelligence is subnormal; in chondrodystrophy it is normal.

ETIOLOGY.—Little is known as to the cause of this disease. It has been attributed to privation, hardship and injuries during pregnancy, alcoholism, syphilis, cretinism, consanguinity and heredity. Privation and hardship during pregnancy have been noted in a few cases, but in others the conditions have been good. Moreover, privation and hardship are common and this disease is very rare. The same criticism applies to alcoholism and syphilis as etiological factors. Syphilis, moreover, causes pathological lesions in the bones of a different nature. Injuries could hardly cause such symmetrical and multiple lesions even if microscopical examination did not show that the pathological changes were not due to mechanical causes. Pregnancy in two of the cases (Kaufmann and Lampe) was the result of incest. The assumption of consanguinity as a cause is hardly justifiable on this basis, however.

In a considerable number of cases adults afflicted with this condition have borne children of the same kind. (Vrolik, Porak and Lauro.) In other cases, however, their children have been normal. (Charpentier, Boeckh, Porak, Friedenheim.) In the majority of cases, however, the condition did not exist in the parents, and even when these cases have borne children similarly

deformed their own parents were normal. Similar conditions occur in animals and in some instances the deformities have been reproduced for many generations. While, therefore, the influence of heredity cannot be denied, it does not seem an important one and certainly does not furnish a satisfactory explanation as to the essential cause of the disease. In fact, nothing is really known as to the essential cause. As in most of the cases the pathological changes have evidently taken place at the time of the ossification of the primitive cartilages and have come to a stop before birth, the disease must be active between the third and sixth months. As it is often associated with other defects of development, it must be due to some general cause affecting the nutrition of the organism as a whole. The association with hydramnios in some cases suggests that the disease may sometimes be due to alterations in the placenta. It is more probable, however, that both are due to the same cause, that is, some morbid process attacking the ovum as a whole. It is probable that this process may be of an infectious nature. Ballantyne suggests that the same cause acting early enough in intrauterine life may produce teratologic monstrosities, while if it acts later it may cause chondrodystrophy.

PROGNOSIS.—Chondrodystrophy affects not only the osseous system but also the general nutrition of the fetus. It is also often associated with other malformations. Hence in most cases the fetus dies in utero.

On account of the malformations, prolapse of the cord, faulty presentations and death during delivery are not infrequent. Even if born alive the child has, as a rule, as the result of the general disturbance of nutrition, but little vitality. The great majority die within a few days after birth.

The milder cases, however, may reach adult life. Edgeworth reports a man of fifty-nine; Thompson, men of thirty-nine and thirty-six; Porak, a man of twenty-seven; Crimail, a man of twenty-two, and Charpentier, one of thirty. The general characteristics presented at birth are retained to adult life. The extremities remain short, but the trunk develops normally. The heads are often unusually large. Muscular development is normal or greater than normal. The intellectual development is normal. The reproductive functions are developed at the normal age and are normal both in males and females. (Cases of Edgeworth, Thompson, Porak, Charpentier and several others.) In women, on

account of the imperfect development of the pelvis as the result of this disease, childbearing is, however, a source of much danger. A number have had normal deliveries. In most, however, delivery has been instrumental or by Cesarean section. Some have borne normal children (Charpentier, Porak, Friedenheim), others have given birth to children showing the same deformities (Lauro and Vrolik). In one case a female dwarf whose family were dwarfs with similar proportions gave birth to a normal child (Boeckh). In another case (Franqué) a woman had one normal child, one with club feet and three with chondrodystrophy.

AMERICAN CASES.—Very few cases of this condition have been reported in this country and the diagnosis of several of these is open to considerable doubt. They are as follows:

The first case reported in this country was by Jacobi. The case ordinarily referred to (*American Medical Times*, New York, 1863, VI., 127) is not a case of this disease. Dr. Jacobi writes that he has reported such a case but cannot remember whether it was published or not. I have been unable to find it.

Hirst, in 1894, under the head of "Rachitis Congenita Micro-melica," gives the photograph of a specimen in the Wistar and Horner Medical Museum of the University of Pennsylvania. The history of this case is lacking. It is hydrocephalic. The limbs are short, curved and thick but nowhere fractured. The pelvis is rachitic in shape.

Smith reports a case of Dr. Heitzmann. The mother inhaled the vapor of lactic acid in her daily occupation during her pregnancy. The infant was born at term but died at once. The skull bones were completely absent and in the cartilages of the bones of the extremities and in those of the ribs there were scanty depositions of lime salts and numerous infarctions. (This case seems doubtful.)

Mason's case was a female, which lived three days. The mother's condition during the pregnancy was good, and there was no history of syphilis or rickets. There was almost no ossification of the parietal bones, the upper portion of the head containing only a few Wormian bones. The circumference of the head was twelve and a half inches. The frontal bones were partly developed. The temporal, occipital and facial were normal. The clavicles were small. There was a fracture in the left. The epiphyses of the ribs were enlarged. Both humeri were curved, the convexity being inward. There was a fracture in the left. The pelvis was

undersized. The femora were curved, the convexity being outward. The ends of all the long bones were enlarged, the middle portions being deficient. The tibiae were sharply curved with the convexity forward. The hands were well developed. There was tongue-tie and exophthalmos. The color was dusky. There was no autopsy.

Townsend's case was a male which weighed seven pounds. The length was seventeen inches. It was born a month premature and died on the ninth day. There was no syphilitic or rachitic history. The mother was not properly nourished during the pregnancy. The head measured thirteen and a quarter inches. The sutures were wide open. There was but little ossification of the cranial bones and less of the occipital, which showed marked craniotabes. The lungs were atelectatic, the sides of the chest depressed. There was marked enlargement of the epiphyses of the ribs. The humeri and the bones of the forearms were curved anteriorly. The femora were curved outward and forward. There were angular curvatures of the lower legs and a double inguinal hernia. There were complete fractures of both tibiae, of the left humerus and of both bones of the right forearm. All united quickly. There was no autopsy.

Safford reports a case first seen when four and one-half years old. It was said to have been "all out of shape" at birth. The parents were Italians, and well. It was born at full term.

Smith reports a case of an infant born at term which died a few hours after birth from atelectasis. There was no syphilitic history. The skeleton is in the Wood Museum of Bellevue Hospital.

Smith reports another case, the child of a healthy mother, which died in five hours. He gives photographs of sections of the bones. Microscopical examination by Prof. Prudden showed no rachitic changes.

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DISCUSSION.

DR. JACOBI—I would like to ask Dr. Morse if the description of the body given on the last page of his paper refers to rickets, or to chondrodystrophy?

DR. MORSE.—Chondrodystrophy.

DR. JACOBI—If I were not told that I should have said it was a case of rickets, as it agrees with what you would expect in that disease, the shortening of the limbs, thickening of the ends of the bones, etc., exactly what you would expect in a characteristic case of rickets that has gotten well. Altogether the points in the paper that are meant to be differential between the two diseases are so numerous and were gone over so rapidly that I find it impossible to remember them all, but there were some points that certainly would not exclude a diagnosis of rickets. For instance, I think the reader of the paper said that in chondrodystrophy the swelling was periosteal, which is certainly also so in rickets. Therefore, is it the doctor's opinion that when the swelling is periosteal the disease is chondrodystrophy and not rickets? I should say that that could not be a diagnostic point. It is characteristic that rachitic bones remain thicker and shorter. The shortening is due to early ossification of the epiphyseal line where the growth of bone has its origin, and I think we have a right to claim this as rachitic unless there are other reasons why we should not do so. We should be very careful in differentiating such cases unless they are very, very marked. It appears to me that this case could well pass for rickets and nothing else. Another point is the retraction of the root of the nose and shortening of the base of the cranium. That could be, and is mostly, due to the early ossification of the synchondrosis between the occipital and sphenoid bones, thus interfering with the growth of the base of the cranium. It is the final stage of rachitis which ran its full course before birth. Cretinism used to be explained in that way by this premature synostosis, at a time some fifty years ago (for instance by Baillarger), when we did not know anything about the thyroid and the studies in regard to goiter were of an exclusively anatomical nature. It was looked upon as being due to the same cause as this form of rickets, developed before birth, and where the undue hardening of the bone took place before, or immediately after birth. It appears to me that we should be very cautious about the diagnosis of chondrodystrophy. There are undoubtedly such cases, but it has not appeared to me that the many points given us to-day as contributing to a differential diagnosis are very conclusive. It is very difficult to establish a differentiation. This much is plain, that in chondrodystrophy the epiphysis is large and the epiphyseal line thin and ossified at an early date. In these cases a large amount of fat is formed about the chest and about the limbs, the labia, eyelids, cheeks

and lips; the nose is flat and thick, the tongue large and deformed, exactly such as you see in infantile myxedema. Such a fetus looks exactly like a myxedematous child. I appreciate the paper and the care with which it has been drawn up, but it appears to me that I should be very willing to claim this case as one of rickets and not of chondrodystrophy.

DR. GRIFFITH.—The past year I have seen 2 cases which can reasonably be placed in the class described by Dr. Morse. One came to the Clinic of the University of Pennsylvania. Unfortunately, it died before we succeeded in getting photographs. The second I saw within a week at the Children's Hospital. Of this I was fortunate in getting photographs, but have not yet had time to have them printed. I was struck by the similarity between the feet in this last case and those in the pictures of Dr. Morse. There is the same pudgy, mole-like foot with a deep line at the spot where the instep joins the ankle. In my case there seemed just here to be a sudden thinning of the cutaneous and subcutaneous tissue. The hands were also very short, suggesting strongly the appearance of the mole's foot or of a paddle. The arms and legs were also short, though not as markedly so as in many reported cases. There were no signs of rickets at all, as far as I could discover.

There are several diseases of the bones seen in early life which, although, I believe, entirely distinct, yet touch each other in certain respects. Among these I may mention fetal rickets, achondroplasia, osteogenesis imperfecta and idiopathic osteopetrosathyrosis or fragilitas ossium. First as to fetal rickets; if there really is such a thing, it certainly appears to be rare. Fédé and Finizo carefully studied the heads of many new-born infants, making measurements of the fontanelle, and came to the conclusion that fetal rickets must certainly be rare and Tschistowitsch, as a result of a microscopical study of the bones of one hundred infants, likewise considers it uncommon. It probably differs in no respects from rickets as seen later in infancy, and certainly is not the same as achondroplasia, at least in origin, although it might simulate it in appearance. The symptoms of achondroplasia or chondrodystrophy have already been described and I need not dwell upon them. Then there is a group of diseases which do not have the symptom-complex of achondroplasia and yet approach it in some respects. Among these are the reported cases where the children are born with short thick bones, as in achondroplasia, but in which there is also a remarkable tendency to multiple fractures. In some instances the vault of the skull has appeared to consist of a multitude of minute plates of bone. There seems to be no name for this except osteogenesis imperfecta, which, of course, is only a method of expressing our ignorance. Cases of this kind have been collected and reported by Chaussier. It is evident that these touch very closely certain

cases of osteopetrosathyrosis. They are, in fact, instances of this, but of a peculiar kind. I was forced to include them in this category, provisionally, when I reviewed the subject of this latter disease a few years ago.

With regard to what Dr. Jacobi has said concerning the relationship of achondroplasia and fetal rickets, it seems to me very probable that there are certain final results which may be produced by diseases entirely distinct in their origin. It is only as time advances that we have been able to separate affections which have closely simulated each other in appearance. So it may be in this case. However much a certain case may superficially appear to be rickets, yet, if it can be shown that the histological process which constitutes the basis of rickets is absent, then the disease cannot be called this. Now, this has been done in numbers of cases of achondroplasia. There have been found none of the microscopical changes which constitute rickets. Rickets appears to be an inflammatory affection in certain respects. There is an osteitis present. Achondroplasia, on the other hand, seems to be a defect in development. There is no inflammatory process. Although, therefore, we may have produced by each disease dwarf-like and other conditions which are apparently identical, yet in reality they cannot be so, for the pathological processes are different.

DR. HOLT—I have had a private patient under observation for three years that exhibits these symptoms described and have also had one hospital case of the kind. It seems to me that the clinical picture is something unique and quite distinct from that of rickets.

My patient is now four years old and her height only thirty-two inches. She is a most peculiar looking child and has a large head, circumference twenty-one inches. The bridge of the nose is much sunken, apparently owing to the shortened base of the skull. The fontanelle is still open. She talks well and the mental condition is essentially normal. She began to talk at fifteen months and has progressed steadily. The child lacks the typical bone changes of rickets, the enlargement of the epiphyses and beading of the ribs. It is perhaps of some little interest that thyroid extract was used for nearly two years without any result. A striking feature of the appearance of this child is that the soft parts seem too large for the bones. There are several deep folds of skin between the hip and ankle, as though the skin is too much for the bone.

DR. CHRISTOPHER.—What was the shape of the hands?

DR. HOLT.—The fingers were very broad and very short and nearly of equal length. The growth in the limbs, measuring from the anterior spine to the bottom of the heel, has been exceedingly slow, amounting to only four inches in three years.

DR. GRIFFITH.—I would like to state that in the second case to which I made reference the measurement from the anterior superior spinous process of the ilium to the heel was only about ten inches, while to the top of the head it was between twelve and thirteen inches, showing a distinct shortening of the lower extremities. There were also the curious folds of flesh to which Dr. Holt refers. The appearance of the child was certainly much more suggestive of cretinism than of rickets.

DR. CHRISTOPHER.—I have charge of a family of three such children that I have been watching for three or four years. I had them on thyroid treatment for some time, but without any effect. They are not idiotic, but do not do well at school. Dr. Walker has charge of them for me and he thinks them rachitic, but I cannot think so. The hands are exactly what Dr. Holt describes, the feet short and the legs very short. The appearance is very suggestive of cretinism.

DR. MORSE.—I hardly know how to answer Dr. Jacobi's criticisms unless I read my paper all over again. We seem to differ not only as to opinions but also as to facts. I must refer you to the literature of the subject and ask you to form your own opinions from it. I must speak of certain points, however, as there can be no question as to the truth regarding them. Shortening of the bones of the cranium is not always due to early ossification. It may be due to failure of development. I thought that I satisfactorily explained the relationship between chondrodystrophy and myxedema in my paper. There is no question but that the periosteum as well as the cartilage is involved in rickets. They are both involved, however. In chondrodystrophy the process is entirely different from that in rickets not only as to the time of development but also as to the method of development. The literature to which Dr. Griffith referred was what I skipped in reading my paper. I naturally cannot agree with Dr. Jacobi as to the diagnosis in this case. I never saw a case of rickets in which there was a similar involvement of the shafts of the bones and no enlargement of the epiphyses, as is shown by the X-rays.

Cyst of the Superior Maxilla.—Maass reports (*Gazette Hebdom. Méd. et de Chir.*, March 20, 1902) the case of a boy, twelve years old, in whom there developed a tumor filling the canine fossa. This growth appeared eighteen months after the extraction of two teeth for a periostitis at the root. This tumor was covered with a thin, bony plate. Exploratory puncture brought forth the contents, which were composed of leucocytes, cholesterine crystals, and pavement and cubical epithelium. The tumor was a cyst of the root of the tooth, due to a proliferating epithelial formation.—*Medical Record.*

THE MANAGEMENT OF RHEUMATIC CHILDREN.*

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It is unnecessary before this Society to discuss the symptoms of rheumatism in children. It is sufficient for the purpose of this paper to simply call attention to one of the most marked peculiarities of the disease as it appears in early life. I refer to the frequent distribution of symptoms through months or even years. Several symptoms habitually appear in children which are rarely seen in adult life, for we must class the following in the rheumatic group: arthritis, fibrous nodules, purpura, erythema, chorea, tonsillitis, endocarditis, and pericarditis. These symptoms are, in some cases, massed together, several appearing at the same time. They more frequently, however, appear separately and extend over years of time, as shown in the following case:

H. B., at twelve years of age, gave the following history: An attack of chorea in three successive springs at six, seven, and eight years. "Growing pains" at intervals during these three years. Arthritis of both knees and ankles at nine years, followed in four weeks by chorea. Another attack of arthritis three months later, and chorea again after seven months. Several attacks of tonsillitis during this time. Finally an attack of arthritis with well marked fibrous nodules and endocarditis which left a mitral regurgitant murmur behind. Here we have a rheumatic history requiring six years for its evolution with, perhaps, more to follow.

We are largely indebted to Cheadle for pointing out this peculiarity of rheumatism in children and showing the interrelationship of the various symptoms. It is seldom that so much truth is contained in a single sentence as in the following from Cheadle: "The various manifestations of rheumatism massed together in the case of adults tend to become isolated in the case of children, so that the whole phenomena are distributed over years instead of

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

weeks or months, and the history of a rheumatism may be the history of a whole childhood."

In view of these facts, it is clear that we do not do our full duty by the rheumatic child if we content ourselves with simply treating the various symptoms as we are summoned from time to time. Preventive medicine is a most important part of the work of the modern physician and in rheumatism he has an especially promising field.

The management of the rheumatic child may be considered under four headings: Clothing, exercise, diet, and medication. Before considering these subjects, a word may appropriately be said regarding the etiology of rheumatism. Modern medical opinion seems to tend strongly to the belief that acute articular rheumatism is an infectious disease. This seems a very reasonable proposition, although a specific germ has not as yet been discovered. As a profession, however, we are long passed the stage of thinking that germs alone are sufficient for the production of disease. The soil is necessary as well as the seed, and in most of the infectious diseases we recognize predisposing as well as exciting causes. This is certainly true of rheumatism. Whatever the discoveries of the future may be, we shall no doubt continue to consider certain conditions as predisposing, the prevention of which will be a part of the treatment. Hence, clothing, diet, and hygienic management may very properly receive attention in any discussion of the disease.

The rheumatic child should wear flannel at all seasons, though during the summer it may be of thin texture. Its value as a means of prevention is too well established to be doubted. If it accomplishes nothing more, by diminishing the danger of chill it does much to prevent congestion and inflammation of the throat, an important item in view of the fact that the throat is apparently one of the most frequent portals of entry of the rheumatic infection. Cold and wet feet should be especially avoided.

The exercise and out-door life of rheumatic children should receive peculiar attention. There is a strong tendency on the part of mothers to confine such children to the house too closely and thus render them the more susceptible to cold. On the other hand, there are many days during the winter in which a child of rheumatic tendency should be kept in the house. Days of damp east winds, particularly if the ground be covered by slush or melting snow are especially favorable for the development of rheumatism.

Here, as in so many other places, the middle course between too much coddling and too much exposure is the golden mean to be sought.

The diet of the rheumatic patient was formerly looked upon as of more importance than it is at the present time. When the acid theory was more generally held and when the difference between rheumatism and gout was not as well understood, it was natural that diet should be looked upon as a most potent factor in etiology. We should not, however, go to the other extreme, for it is quite possible, even if the disease be of microbic origin, that a vicious diet may be a predisposing cause. English writers still seem to have almost a morbid fear of meat and nitrogenous matter. This fear extends, in some quarters, even to the use of beef tea, animal broths, and eggs. Many recent writers, particularly in this country, have expressed the opinion, however, that the danger of rheumatism is not increased by the use of nitrogenous diet. The trend of opinion seems to be that restrictions of diet should be rather in the direction of sugar and starch. With this belief I would strongly concur. The rheumatic child is prone to be anemic and I believe that a plain but generous and nourishing diet, which contains some nitrogenous matter, is the best.

In investigating literature quite extensively to ascertain the prevailing opinion regarding diet in rheumatism, I have not found an author who disapproves of milk as the principal diet during an acute attack. The French writers are particularly insistent upon its importance. They deprecate the use even of broths. While milk is unquestionably the best diet for acute rheumatism, I have never seen injury follow the use of properly made broths or plain soups. When the thirst is great, weak lemonade or oatmeal water may be given. As anemia and physical depression develop rapidly, a more general diet should be begun very soon after the temperature approaches the normal and the joint symptoms have subsided. It goes without saying that every case should be carefully studied and the capacity of the patient to take and digest food be made the principal guide in its selection. I would simply advise against keeping the child too long on a weak liquid diet.

As a prophylactic measure proper care of the throat and the removal of adenoid growths and enlarged tonsils must be strongly commended. We may, perhaps, thus close one of the important portals of entry to the rheumatic bacilli.

The preventive treatment of rheumatism does not consist alone

in the use of the measures thus far referred to. Medicinal treatment may be an important element in prevention. We prevent acute attacks of malaria by the repeated administration of small doses of quinin. We prescribe cod-liver oil for more or less continuous use for the children of the so-called strumous tendency. We administer iron for long periods to the anemic. In the same way we may properly prescribe medicine to children of rheumatic tendency. I am convinced that we may do much by the use of the salicylic compounds to prevent acute outbreaks of rheumatism. I have for a long time been in the habit of prescribing for rheumatic children salicylate of soda to be given for a week or two at a time for long periods. Heiman in a recent paper (*ARCHIVES OF PEDIATRICS*, January, 1901) mentions a similar method. After an attack of the disease, he continues the administration of the salicylates in small doses three times a day for one week of each month for a year or longer. He asserts that Ewart of London, is the only one who has alluded to this method of treatment. I have no desire to take the credit from these two authors, but was somewhat surprised in reading the statement, as I had employed salicylate of soda in this manner for several years. I distinctly remember that Dr. E. LeFevre of New York, in a consultation about five years ago, advised similar treatment. A theory for such use of the salicylates, which seems rational, is that the bacteria or perhaps their toxins may lie dormant in the system for long periods and are destroyed by the continued action of the drug.

Many authors have advised the continuance of treatment for a considerable period after the subsidence of the acute symptoms, and I cannot urge the necessity of this too strongly in the case of children. Whenever there is a recurrence of any of the rheumatic symptoms, I would advise the use of salicylate of soda in doses of from three to five grains, three times daily for one or two weeks of each month, for months at a time. The results of such treatment are particularly satisfactory in those children who suffer from growing pains, who have repeated attacks of tonsillitis, recurring attacks of chorea, or mild arthritis.

Upon beginning the treatment of any disease, it is a wise plan for the practitioner to ask himself what he wishes to accomplish. If he can give a clear-cut and decided answer, he will have done much to render his treatment effective. In the case of acute rheumatism, the answer might well be: 1st. To control the fever. 2nd. To relieve the pain and render the patient comfortable.

- 3d. To check the arthritis and other local symptoms by neutralizing the effect of the rheumatic poison on the fibrous structures.
- 4th. To prevent involvement of the serous structures, notably those of the heart.

While the first three of these are highly desirable, they are of little importance as compared with the fourth. Were it not for the danger of cardiac injury, rheumatism, owing to its usual mildness, would be relatively unimportant in pediatric practice.

Two methods are commonly in vogue in the treatment of rheumatism—the alkaline and salicylic. The alkaline treatment proposed by Fuller consists in giving large doses of alkaline salts. It is universally admitted that to be of any value the urine must be kept alkaline in reaction, and the amount of alkali administered must be very great. So firmly was this method established, and so fearful were physicians of the depressing effects of the salicylic compounds, that for many years no author seemed to have the courage to advocate the salicylic method alone. As a matter of fact, however, practitioners were universally using the salicylates and were universally not using Fuller's method. In recent years articles upon the treatment of rheumatism have reflected more accurately the practice of the profession of to-day. Beginning my medical practice in Bellevue Hospital but a few years after the introduction by Maclagan of the salicylic compounds as remedies for acute rheumatism, I saw much of the treatment of that disease by the older method and must say that I do not like it. The alkalies, when given in massive doses, are depressing to the heart and circulation. The treatment is capable of causing as much cardiac depression, it seems to me, as does the salicylic method. Alkalies, moreover, tend strongly to increase the anemia. It seems to me also that the often repeated statement that cardiac complications are less common with the alkali treatment than with the salicylate lacks confirmation, provided that the medication is not stopped too soon. Neither, it seems to me, are relapses more common with the salicylic than with the alkaline treatment, when the treatment is properly persisted in.

Statistics are largely made up from hospital experience. But rheumatism is notably a disease in which hospital experience may prove very misleading when applied to private practice. The hospital patient is much more frequently an anemic, poorly fed, and badly nourished individual, seen only after the disease is under full headway, than is the private patient. The salicylic com-

pounds act so promptly and efficiently in many cases that the patient is prone to leave his bed and undergo exposure before he can safely do so. Cardiac involvement may thus occur when it would not do so under a treatment which gave less prompt relief of pain. For the same reason relapses are, perhaps, more common, for many patients stop the treatment as soon as they feel better. I am by no means alone in these opinions. Fagge, Strümpel, and Packard have very recently expressed the same beliefs. Fagge asserts very positively that when the salicylates are continued an adequate time after the relief of acute symptoms, relapse is less liable to occur than with other treatment. He also asserts that it is reasonable to expect that any remedy which prevents fresh joints from becoming affected would hinder the development of endocarditis. He believes that this is the fact, though the salicylates do not check endocarditis when it is once established. As to that point, however, it has never been demonstrated that alkalines or any other form of medication have any controlling effect over endocardial inflammation.

I quite agree with Packard, who has written one of the best articles extant on the treatment of rheumatism ("A System of Practical Therapeutics," by H. A. Hare, M.D.), that impressions must, to some extent, take the place of figures in questions so difficult to solve by statistical methods. I agree with him, also, in the belief that the salicylic compounds in shortening the duration of the attack and lessening its severity tend to prevent the occurrence of cardiac complications, which might occur during later weeks were the disease to go on. It is certainly a fact that at the present day, outside of the hospitals, the old dictum of Warren is untrue that the best treatment for rheumatism is "six weeks." Six-weeks' attacks of rheumatism in adults are now far less common than they were twenty-five years ago. I am well aware that attacks of rheumatism in children between five and twelve years are usually mild and evanescent. As they are capable of doing great damage, however, it is our duty to render them, if possible, milder and more evanescent.

Many authorities speak in favor of combining the two methods of treatment and I have made diligent effort to do so. In the case of children, however, I have so frequently found myself in the position of the proverbial man who tried to sit upon two stools at once that I have abandoned the effort. The alkaline method requires the use of very large doses of alkaline salts at the out-

set. The salicylic method requires the use of large doses of the salicylate at the outset. Small doses of either are inadequate. The alkalines are very prone to disturb the stomach and the same is unfortunately true of the salicylates and both are depressing to the circulation. The use of both drugs in adequate quantities can be depended upon to upset the stomach of any child. It is far better, it seems to me, to select either one or the other and hold to it as the chief treatment. If the treatment by salicylates is selected, after the doses of the first few days have been reduced, an alkali may be added to advantage, but the stomach should be carefully watched. I often administer bicarbonate of soda with the milk, more, however, for digestive purposes than with the idea of relieving the rheumatism.

It is wise at the outset to begin the treatment of rheumatism with a cathartic, and calomel in small repeated doses has particular advantages. The condition of the bowels should be watched throughout the course of the disease for their locking up is almost invariably followed by increase of the symptoms. Saline cathartics have many advantages but their overuse is to be avoided in children as they tend to increase the anemia.

It is important to begin the administration of a salicylate at the earliest possible moment. The salicylate of soda, all things considered, has been in my hands the most satisfactory preparation. It may be given in doses of five grains every three hours to a child of six years, forty grains per day. After the third day, if the disease seems to be under control, the interval may be increased. If the case is a severe one, or if no improvement is seen after the first day, the interval should be reduced to two hours, so that sixty grains are taken in one day. During the first two or three days the doses should be given at regular intervals, day and night. They are usually better tolerated if not taken on an empty stomach. Hence, it is well to give the nourishment at the same interval, and administer the salicylate after it. As a vehicle, I often use an essence of elixir of pepsin which is palatable and apparently counteracts a tendency to vomit.

Salophen is one of the best substitutes for the soda salt, but the expense is sometimes an objection. Salol, it seems to me, is rarely available in acute rheumatism, particularly in children. The oil of wintergreen is, in my experience, more depressing than the salicylates, and after a few doses is often refused by children. Salicin is difficult to administer to young patients. It may be given in doses of three grains every three hours at six years.

Hyperpyrexia is extremely rare in the rheumatic attacks of children. When it does occur it should be treated with cold baths or cold packs with, perhaps, small doses of phenacetin well guarded by stimulants. Stimulants are otherwise very rarely required by children with rheumatism.

The rapid development of anemia is one of the most marked characteristics of rheumatism in children. I begin the administration of iron, therefore, at the earliest possible moment. The time that moment arrives has, however, been a question of much discussion. It was the teaching of Prof. Loomis, under whom I served as house physician, that iron should be commenced as soon as the temperature ranged below 100°. I have rarely seen bad results follow such use. The disease is so prone to relapse that it is impossible to say in most cases whether it is due to this or that cause. For children convalescing from rheumatism, I have long used Basham's mixture (solution of iron and ammonium acetate) which admirably fulfills the requirements. It is palatable and well tolerated by the stomach, while its diuretic action is extremely favorable.

These children are so prone to be anemic that I feel impelled to give a generous diet as soon as it is possible. In some cases I have not hesitated to give beef juice and even a little meat very soon after the disappearance of the symptoms. The sooner we can restore the nutrition, the less liability will there be to relapse. There are, moreover, some cases of rheumatism occurring in anemic, poorly nourished children in which no improvement can be secured until iron and cod-liver oil are administered. The sooner we can improve the nutrition, the sooner we control the disease, and the less we see of relapses and complications.

Local treatment may be effective in relieving the pain and in some cases, perhaps, in controlling the severity of the arthritis. Every rheumatic joint should be protected from the air by a flannel bandage or by cotton wool. A light splint of basswood or pasteboard will often give great relief. If but a few joints are involved, they may thus be immobilized and the patient can be moved with comparative comfort. The arthritis in children is so transient that it seems useless to apply plaster of Paris, or even a starch bandage. Heat in my experience has been more acceptable to most patients than cold. I rarely use watery applications, though a lead-and-opium wash may give some relief. Unless carefully applied, by their evaporation, they cause more pain than they

relieve. I have used oil of wintergreen and various liniments locally, but have been unable to see any material results. The odor of these preparations, particularly wintergreen, becomes very objectionable to some children. Blisters should never be used in young children, even in subacute and chronic cases.

Children suffering from any rheumatic manifestation, even chorea, if it be severe should be put to bed and kept there absolutely until every symptom has disappeared. I feel like speaking very strongly upon this point for it is one upon which the average practitioner frequently errs. Rest in bed will not always prevent cardiac involvement, but will do more to that end than will any other means we possess. Without such rest, it is impossible to control certain cases even when subacute. The symptoms will continue for days and will repeatedly recur. The patient should be placed between blankets instead of sheets and a light flannel jacket should be worn. This will enable the child to sit up in bed without danger of exposure and he will thus be less discontented during the days when the symptoms are slight.

We cannot always prevent cardiac disease in our young patients of rheumatic tendency. By proper diet, clothing, exercise, hygienic management, and perhaps in some cases by medication we may do much to prevent acute attacks of rheumatism. Such an attack having occurred, we may still do much to prevent cardiac involvement by diet, rest in bed, protection from exposure, and medicinal treatment. The attack having been controlled, we may lessen the danger of relapse by continuing all the precautions, improving the nutrition, and persisting in the medication. In closing, I would again urge the vital importance of nutrition-improving treatment, and the folly of relying wholly on specific medication in the rheumatism of children.

113 WEST NINETY-FIFTH STREET.

DISCUSSION.

DR. CHAPIN.—I was very glad that Dr. Crandall brought up this subject, and treated it in such a broad way, because I believe that physicians, as a class, do not always do their whole duty in impressing families with the importance of treatment in rheumatism. A child with rheumatism is a child that needs, not a week's attention, but months and perhaps years of care. If we could

give that attention we would ward off a large number of chronic valvular diseases later in life.

I believe that a large proportion of valvular diseases begin in childhood. We see children with these pains occurring every few months and a little later on we find them with chronic valvular disease. In children the symptoms of endocarditis are so slight that they are passed over. The complaint of pain is slight, or not at all, yet there is the hopeful time for treatment. There is soft heart muscle but the child is allowed to run around until finally we have dilatation, and incompetency of the valves and permanent disease. Owing to the fact that the arteries are so healthy in early life there may be no symptoms at all. The effect of the arteries on the circulation we often overlook; they are elastic and healthy and help out the heart. With middle age the other symptoms come on. Patients do not know how long they have had the trouble, but in the majority of cases it has begun in childhood. If we would follow out Dr. Crandall's ideas we might prevent many of these cases developing serious symptoms. The principal thing, perhaps, is absolute rest. I agree with him that we must keep on treating these children.

With reference to the modern idea that there is a microbic origin for rheumatism, I am not sure, but I believe that that theory is best in following a disease that gives us the best results in practice, and I believe the best results are obtained by following the old theory of an acid condition. By preventing the acid from forming, and by acting upon the skin and intestinal tract to rid the system of the acid I get the best results. With reference to the salicylate of soda I agree that it should be given for a long time in small doses, but would call attention to one peculiarity in its action and that is, an occasional purpura following its free administration. We should be on the lookout for that, and should also bear in mind that the drug is depressant to a certain extent, but by giving it in small doses, and at the same time treating the digestive tract carefully and acting upon the skin we can do a great deal with it to avoid the occurrence of endocarditis.

DR. JACOBI.—Everybody knows what I am going to say; that prevention is better than cure. Get the children used to cold water in whatever shape they bear it best. Rub them well and get up a good circulation. Attend to their throats. Have hypertrophied tonsils removed. I find a great many such throats and find that the people have been consoled with the expectation that in a number of years, at seven or thirteen, they will be all right. In the meantime rheumatism develops, or other infections take place.

DR. CARR.—One thing I have found of service in these cases is the employment of the fats; cod-liver oil is always the best, but butter and cream are valuable. Frequently iron is not well borne and yet the child seems to need something more than a gen-

eral so-called tonic. By the use of cod-liver oil, in doses according to the digestive strength of the child, much more will be gained than with the use of the hypophosphites, arsenic, or substitutes for iron. We can hardly be too emphatic in endorsing what Dr. Jacobi has said regarding the tonsils.

DR. PACKARD.—In the course of his remarks Dr. Crandall mentioned, incidentally, the asserted depressing effect of the salicylates upon the heart. It seems to me that too much importance is by some attached to this effect, and I do not believe that this depressing action, even if it is as marked as some hold, is of much disadvantage. In rheumatic endocarditis our patients do not die nor do they seriously suffer because their hearts are depressed. In these cases I believe it to be eminently desirable to lower the activity of the heart, and it has always seemed to me that in cases of acute endocarditis, digitalis, which is sometimes strongly urged in this condition, should only be employed where after careful consideration it is determined that its use is necessary to save life. I should think, therefore, that if the salicylate is depressing to the cardiac muscle it is rather an advantage than otherwise.

DR. KOPLIK.—As to the removal of the tonsils in these cases I would like to call attention to the fact that before any operation upon the tonsils, or adenoids, is performed on these little ones we should be certain that endocarditis as an acute process has come to an end. I have seen a case in which the physician, though he knew that endocarditis was recent, advised operation on the tonsils and adenoids. The tonsils and adenoids were removed; within a few days there was chill—although the operation was done under the proper precautions as to asepsis—a new attack of endocarditis set in and caused death in a very short time. Such cases are extremely exceptional, of course, but should warn us to wait for quiescence of the cardiac condition even though the tonsils and adenoids are very marked.

DR. WILSON.—There are two or three things I would like to say in this connection. The first is this, that perhaps to me the most important point made by Dr. Crandall was in the title of his paper, in which he uses the words "rheumatic children." It leads up to a proper conception of the predisposition to rheumatic fever and enables us to see that there are important generalizations to be made in regard to the whole subject. Some time ago Dr. Packard emphasized the importance of the relationship between tonsillar angina and rheumatic fever. In some individuals, by reason probably of anatomical peculiarities, there is an especial liability to infection.

A mild angina may be the only result. If a general rheumatic infection takes place certain tissues only may react to it. In some cases there are joint manifestations, in others endo- or pericarditis or the two combined. In a small proportion of cases a rheumatic

pleurisy may arise or rheumatic peritonitis, or we may have meningitis—so-called cerebral rheumatism. These facts are trite and familiar, but their consideration and the recognition of the part played by the various tissues in rheumatic fever leads to a broad conception of the disease. A trifling angina may be followed by an equally trifling joint affection or none at all, or the earliest manifestations may be endocarditis so slight as to attract no attention. The child becomes anemic, fails in health, loses appetite and upon investigation is found to be suffering from endocarditis. The joint affection may be overlooked or regarded as a manifestation of "growing pains." The febrile movement also is often trifling. Such attacks recur from time to time, to be succeeded after a while by an attack of well-marked rheumatic fever. When such a child reaches the age of puberty it will be found very often to have signs of chronic valvular trouble.

As to the continuous administration of the salicylates I find myself disposed to be at variance with the reader of the paper. Perhaps I have not developed the proper appreciation of drugs. I would prefer to await the development of distinct rheumatic symptoms before using the salicylates. I am distinctly at variance with Dr. Packard as to the advantage of depressing the action of the heart. I believe that the proper method of easing up the work of the heart is to reduce the height of the column of blood which it has to lift at every stroke and thus minimize its work. This is best accomplished by keeping the patient in the horizontal posture for several weeks after the acute symptoms have disappeared.

I agree with Dr. Jacobi that general hygiene, particularly that of the skin and throat, constitutes our very best prophylactic treatment.

DR. BLACKADER.—I desire to express my entire agreement with what Dr. Wilson has said about the use of digitalis. It is rarely called for in any acute affection of the heart. I also agree with him as to the necessity in the rheumatic affections of children for the administration of the salicylates for some time after the symptoms have subsided. As to the use of the potassium salts, I think that very few of us would feel justified in pushing their administration to the extent that Fuller did, but the potassium salts may be employed in smaller doses, I think with good effect, stimulating diuresis and assisting in the elimination of the toxins. I question whether we have any right to infer that because quinin will ward off malaria, salicylic acid given occasionally in small doses will ward off the development of rheumatism. I must confess that my experience leads me to place more dependence upon increasing the resisting powers in the child by treatment of its general condition, securing a vigorous reacting power in the skin, and a healthy condition of the tonsils. I do not think that we yet know enough about these specific drugs to use

them in a prophylactic way. In every other respect I agree with Dr. Crandall.

DR. PACKARD.—I would like to correct what I think is a misunderstanding of what I meant to say in my remarks. I did not mean that I would give the salicylate for the purpose of depressing the heart, but that it is better not to give a drug to stimulate the heart.

DR. CRANDALL.—I think from my rather prolonged discussion of other points that there has been a misunderstanding as to the amount and frequency of using the salicylate that I advocated. I said only at *intervals*—one week out of three or four, and then only where there is decided tendency to recurrence, or in a case like one I saw a week ago in a child of nineteen months, where there was decided articular rheumatism. The arthritis was as distinct as in any adult. In twenty-four hours both knees, ankles, and wrists were involved. The mother of the child was also rheumatic. One could hardly expect that mere hygienic management would prevent that child from having additional attacks. I believe in such a case that small doses of the salicylate of soda, two or three times a day, for a week at a time, is good treatment. I would not advocate giving it continuously.

Jaundice and the Hepatic Congestion of the Newly Born.

Angelo Lisanti (*Riforma Med.*, November 30, 1901) states that the presence of biliary salts and acids in the blood following attacks of jaundice predisposes the newly born child to so many diseases, that something must be done to overcome this tendency. The materials which accumulate in the intestine in such cases are not removed spontaneously under the stimulus of the maternal colostrum, and it is necessary to intervene with appropriate treatment in order to prevent the absorption of bile, and to combat the intestinal distention resulting from the stagnation of the contents. Hepatic congestion in infants, though it cannot be considered as a true pathologic entity, because it may disappear completely without leaving any traces, may be the starting point of other hepatic disorders. It is true that these are rare in early infancy, but not so rare as is commonly believed; for since the attention of clinicians has been called to cases of hepatic disease in infancy such cases have been appearing more frequently in literature.—*New York Medical Journal.*

THE USE OF THE TERM "ENANTHEM."*

BY F. FORCHHEIMER, M.D.

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At the Cincinnati meeting of this Society I had the honor of presenting a paper on the "Enanthem of German Measles." Some doubts were expressed in the discussion as to the propriety of using the term "enanthem." The object of this paper is to dispel these doubts and, at the same time, to ask your co-operation in assigning to this term a proper place in our nomenclature.

It is difficult to say by whom the term was first employed; I find it first used by the French (Cadet de Gassicourt, 1882). After this it was employed by the Germans. In Eulenburg's Real Encyclopedie, edition of 1880, the word is not found; but in the one of 1886 it occurs with a definition. At the present time the term has been universally adopted by the French authors; no modern description of the acute exanthemata exists in which it is not used. In Germany also, the word is being made use of more and more constantly, although Villaret's "Handwoerterbuch der Gesammten Medizin" (1899) prefixes its definition by calling enanthem "ein seltenes Wort" (a rare word). Notwithstanding this, we find in the latest of the larger works on practice, Schwalbe and Ebstein, Vol. V. (1901), the period of invasion in rubella spoken of as the "Stadium enanthematicum sive prodromorum." In addition to those mentioned before I find the term in the Dictionnaire Encyclopédique des Sciences Médicales (1887) and in Littré. In English it is found in the following dictionaries: Dunglison and Foster's medical dictionaries; the Standard; the Century and the Imperial as enanthema, in Worcester as enanthesis, always with the definition which seems the correct one.

In recommending a new term made up of two Greek words, although it may have been accepted by many other authors, it is well to go into its derivation, for, after all, we physicians do not want to be looked upon as outer barbarians. We already have a sufficiency of terms that are etymologically sinful. That "enanthem"

* Read before the American Pediatric Society, Boston, May 26, 27, and 28, 1902.

has been accepted by the Germans and the French is distinctly in its favor, as they are slow to act in this direction; as expressed by Hofmann, in connection with a word made of a Latin noun having joined to it a Greek ending, some of them do not wish to hurt their conscience which has been developed by their training at the gymnasium. It may be said to begin with, that the word *ἐνάνθημα* does not occur in the Greek authors; it is not found in either modern or ancient Greek; so that its meaning must be worked out from another word which is constantly employed, *i.e.*, *ἐξάνθημα*.

Concerning the propriety of this word there can be no doubt, as Hippocrates uses it constantly in his aphorisms; I do not find it in Hesychius, but quite a paragraph is devoted to it in Stephanos. The derivation of this word is the preposition and *ἄνθημα* from the Greek root *Aθ*, which means to blossom. Stephanos defines this word *ἄνθημα, το* as *florum emissio; florium productio, vel floris; efflorescentia, si ita dicis posset, ipsus florendi actio*. *Ἐνάνθημος* would then mean a fluorescentia within, in contradistinction to a fluorescentia without, *ἐξάνθημα*. "*Ἄνθημα*," is, as far as I can find, a term which, when used at all, is simply used for its botanical meaning, while *ἐξάνθημα* is a purely medical term. In looking over the various definitions given for this latter word the conclusion is inevitable that anything appearing upon the skin may be considered an exanthem; thus blisters, pustules, scabs and various kinds of tumors (Stephanos) papules and mucous tumors (Pliny). The modern writers still divide as to the definition of the term whether it is to be used as the external manifestation of the eruptive fevers only, or other eruptions as well. For our purpose it is not necessary to go into this discussion, only in so far as to verify the fact than an exanthem is looked upon by various authors in various ways. Some claim that an enanthem is an exanthem upon the mucous membrane, the definition then resolving itself to the definition of an exanthem. I have serious doubts as to the propriety of confining the term "enanthem" to the specific manifestations of the eruptive fevers; it would certainly not be wise to do this until a majority of authors should unite in giving this purely technical meaning to this term.

A second class of definitions of the term "enanthem" is the one represented by Villaret, "all efflorescences occurring on the inner surface of natural cavities, for instance, the nose, the throat, the mouth, etc., without pathological distinction," corresponding

then with the view just held, except in that it seems too broad to be applied to the acute exanthemata. It seems to me that when the term "enanthem" is applied to the acute exanthemata it should be held as meaning only the specific eruption of the especial form or forms of acute exanthemata that are found upon the patient. In measles, for instance, it is not uncommon to find stomatitis herpetica, yet this cannot be called the enanthem of measles. On the other hand, there are certain changes produced by the acute exanthemata upon the mucous membrane, the streptococcus angina scarlatinae, especially which in the present state of our knowledge it would be doubtful whether they could be rightly held to be included under the heading of the enanthem of scarlatina. If Class's work becomes generally verified then this doubt disappears. The enanthem of an eruptive fever would then be the various manifestations upon mucous membranes of the cause of this eruptive fever, or such manifestations as occur in the vast majority of cases. But it will be found as these enanthems are more carefully studied that it is not a manifestation that localizes itself to one mucous membrane, or a part of it, but as a rule is extensive: in measles, the soft and hard palate, the cheeks, the lips, the tongue, the greater part of the respiratory mucous membrane; in scarlatina, the soft and hard palate, the cheeks, the tongue, the tonsils, and the stomach and intestines.

The question that arises finally is, Why should we use the term "enanthem" at all? Etymologically there are no objections which can be raised to its use. It is extensively adopted by writers of other nations, and we ought to do all we can to make the language of science international. Time is saved by using one word instead of many—as "the appearance upon the mucous membrane," instead of "enanthem." Any objections that can be raised to the want of precision in definition must fall away, in that when the term is used as applied to the eruptive fevers the connection will always preclude any doubt as to its meaning.

DISCUSSION.

DR. CAILLE.—I was one of those who objected to the use of the term enanthem. An eruption or exanthem is a perfectly definite term and conveys a clear meaning whether the eruption be located on skin or mucosa, and I do not think we should complicate matters by adding to our nomenclature in this instance.

DR. GRIFFITH.—Dr. Forchheimer has shown that this is not a new term. I remember seeing the term used in German books before I was a graduate.

DR. WILSON.—Dr. Forchheimer's communication strikes me with some surprise, because for a number of years in my teaching I have used the term enanthem in exactly the sense the doctor describes it as indicating the specific eruption on the mucous membrane in contradistinction to the eruption upon the skin, and I am pleased and gratified to have him call attention in this way to the matter, but it seems a work of supererogation.

DR. ROTCH.—I do not see why if a term is incorrect we should go on using it, or if a term is correct why we should not adopt it just because it multiplies terms. The sooner we all get to work and eradicate the old terms, the better. We should all use our influence to bring the right terms into general use. If I am using an incorrect term I am very glad to be corrected. What is needed is uniformity.

DR. SEIBERT.—The prefix ex implies something that is within and goes out; the en implies something that is outside and goes in. It is the same eruption, whether on the mucous membrane or on the skin, the same pathological condition, and the same term should be used in both instances.

DR. FORCHHEIMER.—I am delighted to hear that Dr. Wilson is using the term. You can include all the eruptions on mucous membranes calling them enanthem, but in our English text books we do not find this term. The only man who has ever used the term in this country, so far as I know, in a text book, was Dr. Whitaker, my colleague. If the term is of any use we should all help in getting it into the literature.

DR. CHRISTOPHER.—Would the word eruption be proper to use? If we wish to distinguish between mucous membrane and skin can we speak, for instance, of the eruption in the mouth?

DR. FORCHHEIMER.—An eruption on the mucous membrane is an enanthem; it saves us just this phrase.

Rachitis in Relation to Artificial Feeding.—M. G. Variot (*La Tribune Médicale*, March 26, 1902) has spent much time on this subject and he has come to the conclusion that, aside from mother's milk, which nothing can perfectly replace, the use of sterilized milk is almost as safe as a wet-nurse. Mother's milk is, without any doubt, superior to that of animals, but, practically, when the mother is incapable of nursing the child, there are so many possible objections to a wet-nurse that the writer advises the use of sterilized milk for a normal infant. He reserves the wet-nurse as the last resort, in case the child does not thrive on the other treatment.—*Medical Record*.

REPORT OF A CASE OF TYPHOID FEVER COMPLICATED WITH PNEUMONIA AND FOLLOWED BY LARYNGEAL DIPHTHERIA.

BY EDWIN ROSENTHAL, M.D.,

Philadelphia.

It is a well known fact that typhoid fever often follows very closely on the presence of other contagious diseases. I have seen cases of scarlet fever, chicken pox and diphtheria, after being cured, followed by a typical case of typhoid fever. Again, I have noted the presence of diphtheria as a complication of scarlet fever (a most frequent complication) and once or twice its presence as a prodrome to typhoid fever.

One case in particular was noted by myself in the practice of Dr. Alexander Klein, which case Dr. James Simpson, and Professor James C. Wilson, also observed. I have also seen diphtheria during a course of typhoid fever. Such an instance is quoted by Thacher, in the Twentieth Century Practice of Medicine (Vol. XVI., page 691). He also quotes Wilson as saying: "Diphtheria is not infrequently associated with typhoid fever, particularly in children."

All my cases in which typhoid fever was associated with diphtheria, either as a complication, or where diphtheria was the initial disease, have occurred in children.

I had never seen, however, a case running a typical course of typhoid fever, and after the fever ceased, followed by diphtheria. Until this case I wish to record occurred, I never deemed such a sequence possible, and having met with such an instance, I deem it of sufficient importance to report. That other cases as this have occurred is quite a probability. I have been told of another instance—the child of a colleague who, after the decline of the fever, suffered from a laryngeal stenosis requiring an intubation. The exact causative factor was unknown, as this happened before the days of bacteriologic diagnosis. The case recovered.

Typhoid fever is endemic in Philadelphia at this time, and has been present in a greater or lesser degree for the last three years. Its constant presence, with also small-pox, scarlet fever, erysipelas and diphtheria to swell the number of preventable diseases invading this community, may be taken as a factor in describing the clinical picture of this disease.

The case I report shows so conspicuously the recuperative powers of a child that, in the description of the case, I wish to divide the various diseases as if they existed alone, for either one could prove fatal, and as the child was constantly ill for a period of nearly three months, a better understanding of the case and its progress can thus be made:

Lizzie G., age six years, born in Philadelphia. Family history good on the mother's side. The paternal grandfather died of phthisis. The child had measles, and had been vaccinated. She

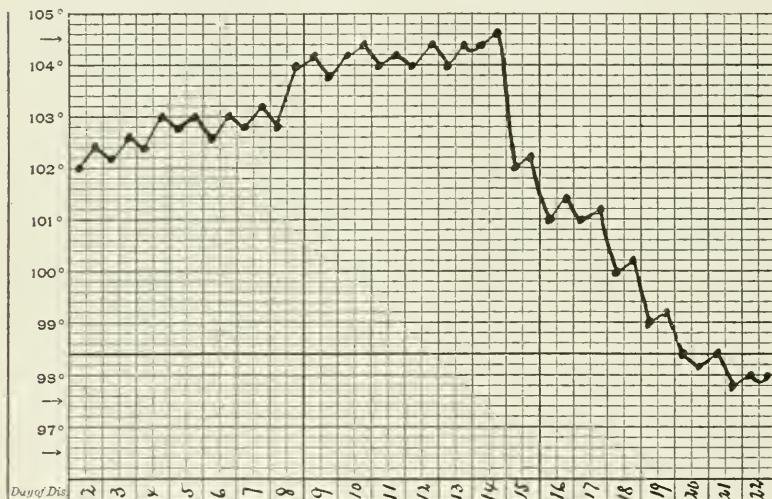


CHART NO. 1.—TYPHOID FEVER WITH PNEUMONIA.

suffered when two years old from whooping cough, which (to use the mother's words) left the lungs weak, so that every slight ailment was followed by a cough. The general physical condition of the child was indifferent. She was very thin, had enlarged tonsils, and breathed as if she suffered from adenoids. This general condition was, however, unnoticed by the parents, for little or no medical treatment was ever persisted in. It was only when the child presented specific or rather alarming symptoms, such as a fever, that medical aid was employed.

On April 10th of this year, the patient was brought to my office. She was suffering from headache, vomiting and fever. Her temperature at this visit was 102° F. (see Chart I.) and her pulse was 120, her respiration was 30. She was sent home and

placed in bed. A blood examination at this period was negative. She had a typhoid tongue. Pain and gurgling were present in the cecal region. There was tenderness on both sides of the hypogastrium. Spleen and liver were somewhat enlarged. There were no rose colored spots until the 15th of April when a few were noted on the abdomen only. There was however constant iliac tenderness, and a moderate amount of tympanites. The tympanites was persistent during each disease. Diarrhea was

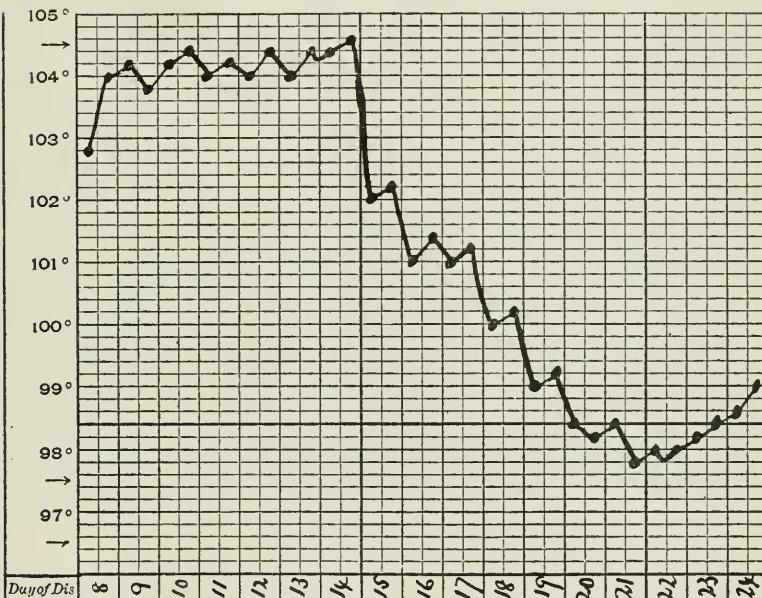


CHART NO. II.—TEMPERATURE DURING THE PNEUMONIA.

present during the whole course and gave place to constipation only after the onset of the diphtheria. The duration and course of the typhoid fever may be considered mild, the temperature never going a line above 103. Cough was always present.

On the sixteenth day of the disease, the temperature rose to 104° F, and pain in the right side was complained of. The respiration increased to 40 and 60 per minute, and the pulse to 150 and 160. There was some expectoration of bloody as well as rusty sputum. The course of the pneumonia (see Chart II.) was typical of a croupous pneumonia. Its duration was seven days and declined as the typhoid fever declined, until the twentieth day

when the normal temperature, though with slightly high pulse, was reached.

The patient at this stage was able to sit up in bed, and expressed the most earnest desire to be dressed and allowed to go into the street. For five days the normal condition of convalescence from typhoid fever was then noted. The movements from the bowels were formed, the appetite was good and the general physical condition was fair.

On the twenty-eighth day of the illness, the mother noted difficulty in swallowing. Examination showed small patches of membrane, not only on the tonsils and palate, but also on the tongue. I had first thought that my patient suffered from

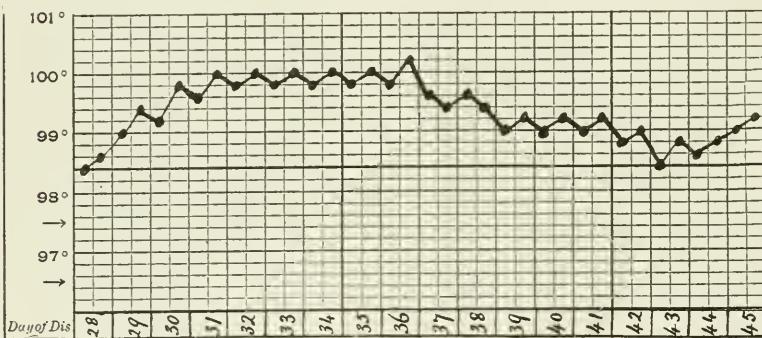


CHART NO. III.—TEMPERATURE DURING DIPHTHERIA.

aphthæ, due to the milk diet and the general low condition of the vitality. Besides, I had been giving calomel during the typhoid and the patient showed a peculiar idiosyncrasy against its use. It produced a slight ptalism, and much intestinal pain when administered.

The temperature rose on the evening visit to 99° F. A bacteriologic test was then made and the specific bacilli reported. On the evening and night of the same day a change in the cough—which was always bronchial—to a croupy paroxysm, prompted me to pursue most vigorous treatment, and 3,000 units of diphtheria antitoxin was at once administered, and calomel until a movement of the bowels was produced. The temperature (see Chart III.) was never high. The pulse however was always above 120. Boric acid in solution was used locally. Examination of the mouth at this time revealed membrane on the uvula and

both tonsils, while the marked stenosis presented the laryngeal invasion.

With the use of these remedies the symptoms improved. The breathing became free, the membrane disappeared, and by the thirty-third day of the child's illness, the fever began again to decline, and on the thirty-eighth day the normal was again reached. During the decline of the temperature the symptoms at times became most alarming. The pulse which was always high began to be intermittent and impending heart failure so much spoken of, and well known even by the laity, was feared. The worst day to exhibit these symptoms was the thirty-seventh, and, while

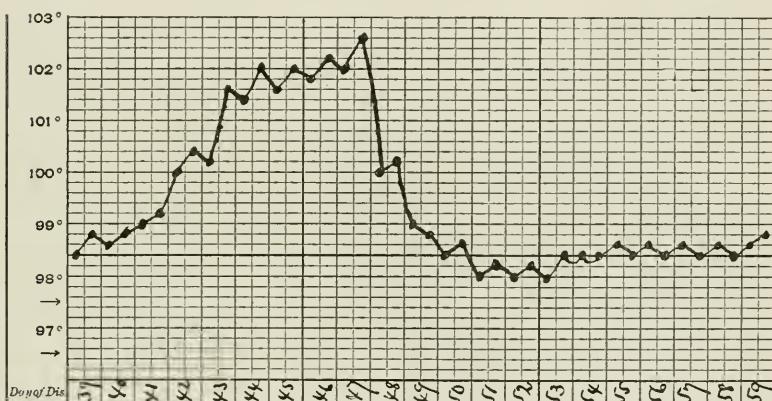


CHART NO. IV.—TEMPERATURE DURING PLEURISY.

judicious medication was pursued, morphin, hypodermically administered, proved of particular value in these conditions.

By the use of antitoxin all visual traces of the diphtheria disappeared on the fifth day, the great depression and overwhelming weakness remaining.

When the normal temperature was reached, convalescence appeared somewhat retarded by the cough and susceptibility to the slightest exposure was again noted. The temperature began to rise again, and pain was complained of on the right side, the side which suffered from pneumonia. Pleurisy now became an addition to the various complications.

During the course of this case, I had Dr. Alexander Klein visit and examine the patient. He recorded: A pleuritic effusion on the right side anteriorly. Otherwise the condition was fair, and the prognosis favorable.

The course of the temperature during the attack of pleurisy can be seen (see Chart IV.). The temperature was never higher than 102.5° F., the pulse 130, the respiration about 50 to the minute. From the time that the patient was seen by Dr. Klein, improvement was noted, the fever again declined, and reached almost to the normal period on the forty-eighth day of the child's illness, the pulse and respiration being always higher than normal.

Considering the history of the child, her paternal grandfather dying with consumption, I had constantly in view the danger from

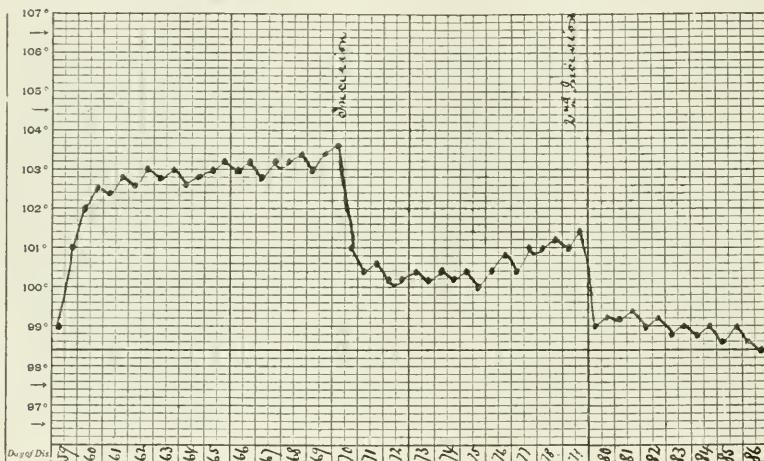


CHART NO. V.—TEMPERATURE DURING EMPYEMA.

tuberculosis and for this reason alone I had the child removed from the sick room into the open air at every opportunity. A rolling chair was obtained, the child placed therein and removed from home to a house near the park. The treatment now pursued was dietetic. This was the most generous and forced. Medical treatment was: strychnia and occasional doses of creosote in peptone.

During the next five days the temperature remained around the normal line, sometimes below, sometimes above, but the indications were very good: the pleuritic effusion was beginning to disappear, the child could breathe deeper and freer, although the cough was constant. There never was a chill and never an indication for aspiration or operation. The gradual improvement continued for a week or ten days.

On June 7th, the sixtieth day of the illness, the child sickened

from an overdose of brandy. From the 8th to the 12th of June I was absent from the city and Dr. Klein assumed charge. He treated the gastric disturbance with calomel in divided doses (0.05 per hour); after this, the diet was continued. On my return, the child had fever again (see Chart V.). The temperature was 102 to 103°. There was never a typical septic temperature, nor was there ever a chill, nor sweats, hence the difficulty in diagnosing whether there was pus or not. However, the temperature continued, the pulse remaining at 120 to 133 and the respiration 30 to 40 per minute. Pain was complained of in the right side, just beneath the floating ribs, and dullness was most marked. The liver dullness as well as the dullness of the spleen had always continued, and thus the difficulty was rather added to. Heretofore an exploratory puncture had been feared by reason of the fact that if pus was not present, this procedure might cause it. I now felt the case required energetic methods, and on June 18th—the seventy-first day of the illness—an exploratory puncture, followed by an incision at the posterior axillary line, in the seventh intercostal space, was made. This was done rapidly under ether and after the incision I simply inserted a tube and allowed draining into the dressing. I was again unfortunate, for, while a pint or more of pus escaped, percussion proved to us that the anterior accumulation had not been reached. Some improvement was noted, both in the temperature, pulse and respiration, but not sufficient to warrant a satisfactory result. The condition of the child prevented any lengthy manipulations, so a postponement for a few days was the order of treatment. Improvement continued and it was hoped that the whole cavity would drain.

The case continued much in the same way until June 26th, the seventy-ninth day of the illness, when as all indications were favorable I withdrew the drain, enlarged the opening with a dilator, inserted my finger, and reached the anterior sac and found considerable over a pint of rather foul smelling pus. I washed out the cavity thoroughly with a saline solution (common table salt, a teaspoonful to each pint of water) and kept washing until the water returned clear. I then inserted a drainage tube, taking care that it was in position. The last operation was made without the use of ether or any anesthetic, and was markedly successful, the temperature falling at once to 99, and it has never gone to 100 since that period.

At present, July 7, 1902, the child presents the following:

Very much emaciated but cheerful in spirits. A ravenous appetite. A pulse 120, respiration 36, temperature per mouth, 99° F. She complains only when moved and then of a general soreness. She is eager to be out and lies on the invalid chair watching other children play. Her tongue is clean, bowels regular. She sleeps well and appears to gain steadily.

The interesting point to note in this case is the diphtheria following on typhoid fever, instead of preceding it. The suppuration following pleurisy is of frequent occurrence. Suppuration following diphtheria I have seen often enough to know it is not rare.

Regarding the pleurisy and empyema following so closely on the diphtheria, the question in my mind is: What was the causative factor? Could this have been prevented? In my anxiety to prevent what I deemed a constant danger—tuberculosis, by reason of a family history—did I expose this child to other equally dangerous chances, by the out-door life, that I insisted upon as soon as practicable? These conditions give one food for thought. A case such as this shows what tremendous recuperative powers exist in childhood. Any one of these diseases would alone be fatal in an adult.

When such a disease as typhoid fever attacks a child perfectly healthy, one that has never been sick, its chance for recovery is less, and why? My own experience has oftentimes proven this: The little puny sufferer that "takes" almost everything that comes along, from chicken-pox to rubella, has far greater chance of pulling through a typhoid fever, with all its complications, than the healthy one. The reason to my mind is in the power of the weak one to assist nature in resisting the development of specific antitoxin. As is well known, a high temperature interferes with the development as well as virulence of the specific bacillus. The healthy child is a virgin soil for the bacillus to thrive upon, and hence its blood is susceptible to a far greater extent whilst its resistance to the influence of the specific bacillus is *nil*.

One point more to note in this particular case, is that the various diseases coexisted. If we take typhoid fever as a bacterial disease, diphtheria as one, and then pneumonia, with pleurisy followed by empyema, surely a streptococcus infection, we have in the one organism a most complicated case of mixed infection showing the possibilities of bacterial invasion.

NOTE.—Since writing the above, I have had occasion to see the patient almost daily, and thus to watch the convalescence.

At this date (July 29th), the patient is able to walk and play. The improvement in her general condition has been steady and marked. Her appetite still continues very good.

After the last washing of the empyema cavity with normal salt solution, the tube drained continuously and the quantity of the discharge was so large that daily or even twice daily changes were necessary.

It may possibly take several weeks more before the drainage tube can be discarded. Meanwhile the child's general condition gives hope of a final perfect health. The last blood examination shows the Widal test still positive.

Clinical Memorandum.

ALUMINUM CREAM DIPPER.

BY ADDISON W. BAIRD, M.D.,

New York.

In several methods of substitute feeding for infants, it is necessary to dip the cream or top-milk from the jars in which milk is usually delivered to families in the city. The article here illustrated is an improved dipper adapted to this purpose. It is made of spun-metal aluminum; the bowl is one inch in diameter, so that it can readily enter the wide mouthed bottles, and it has a rounded bottom, causing the least disturbance of the surface of



the milk; the capacity is one fluid ounce, measuring accurately cream, milk or lime water, and approximately milk or cane-sugar.

The dipper is designed after the manner of the small tin dipper, which has been in use in the scheme of substitute feeding of Dr. Henry Dwight Chapin, and also forms a part of the Sloane Maternity feeding set, proposed by Dr. Edwin B. Cragin. It may be utilized, however, in any plan of artificial feeding for very young children, and will recommend itself for convenience, accuracy and cleanliness.*

* Manufactured by James T. Dougherty, 409 West Fifty-ninth Street.

ARCHIVES OF PEDIATRICS.

AUGUST, 1902.

EDITED BY

WALTER LESTER CARR, A.M., M.D.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

NEPHRITIS IN CONNECTION WITH GASTRO-ENTERITIS.

It has often been stated that nephritis is a frequent complication of gastroenteric disease in infancy, but comparatively few clinical and pathological observations have been made which bear out that statement. The largest numbers are Kjellberg's, who found nephritis sixty-seven times among one hundred and forty-three fatal cases of acute and chronic enteritis. Czerney and Moser describe nephritis as present in eleven infants who died of gastroenteric disease. No clinical symptoms corresponding to the condition of the urine could be demonstrated. Felsenthal and Bernhard reported 15 cases with autopsies, all in children under two years of age. In 14 the kidney lesion was described as acute parenchymatous nephritis, the degenerative changes decidedly predominating. Only in 1 protracted case was there any marked interstitial change in the kidneys.

Holt found only 1 case of nephritis among seventy autopsies, and maintains that marked cloudy swelling of the tubular epithelium is common in enterocolitis, but no more so than is the case in any febrile disease. The latest investigation, by Morse, fully confirms this observation. Morse's cases showed albuminuria frequently, but it was rarely marked in degree. Degenerated epithelial cells were numerous and hyaline and granular casts were occasionally accounted for by the dehydration caused by the diarrhea and by the diminished ingestion of fluids. There was no relation between the albuminuria and the symptoms presented by the child.

The conclusion seems justified, from our present knowledge of the subject, that the kidney lesions which occur in the course of acute diarrhea in infancy are degenerative in type, and but very rarely inflammatory. They are probably present in the majority of cases, and are due to the action of the toxins of the bacteria which are the etiological factor in the production of the intestinal disease.

More frequent routine examinations of the urine in infants are decidedly to be recommended, especially in those suffering from intestinal diseases. The difficulties in the way of collecting sufficient urine to make a complete examination possible are marked in young babies, but with a little patience they can be overcome.

Hysteric Vomiting in Children. — Carrière describes (*Nord Medical*, March, 1902) 2 cases of severe repeated vomiting in girls of about nine years of age. There was no organic lesion. The vomiting had been preceded by other neuropathic manifestations, somnambulism, arhythmic chorea, etc. It did not affect the general health and could be induced, modified and even suppressed at times by purely psychic causes. A hysterical origin was consequently probable, and both of the children were promptly cured by a catheterization of the stomach. Other practitioners have been successful in such cases by administering methylene blue pills or some other impressive measure, by suggestion under chloroform, by hypnosis, and Basset actually performed a laparotomy.—*Journal of the American Medical Association*.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.—SECTION ON DISEASES OF CHILDREN.

Meeting held at Saratoga Springs, N. Y., June 10, 11, 12, 1902.

H. M. McCLANAHAN, M.D., OF OMAHA, CHAIRMAN.

First Day, June 10, 1902.

THE CHAIRMAN in his address suggested the appointment of a committee on necrology and also a committee on the general investigation of the subjects relating to pediatrics. He reviewed the current pediatric literature for the year. During the year 477 papers have been written on this subject. He emphasized the fact that the wonderful advances made in the subject of the diseases of children have been accomplished almost entirely by the physicians of America.

TUBERCULOUS PERITONITIS.

DR. T. M. ROTCH of Boston, read this paper in which he stated a clinical differentiation of cases based solely on the pathological findings is inadequate for a satisfactory decision, both as to diagnosis and as to etiology and treatment. The reason why in cases of tuberculous peritonitis laparotomy has proved to be curative is not definitely known. Tuberculosis of the peritoneum may be a primary infection; most commonly, however, it is secondary. Three forms may be spoken of from a pathological standpoint: First, a miliary tuberculosis with ascites; second, a fibrous form, and this form is essentially chronic, and third, a later stage of the form just described, in which there occur tuberculous deposits with caseation and softening. This has been called the ulcerative form. Five questions require consideration: (1) The diagnosis of the presence of tuberculous peritonitis; (2) the detection of which pathological form is present; (3) whether the tuberculosis of the peritoneum is localized or is secondary to tuberculosis elsewhere; (4) which of these forms is amenable to treatment, and (5) under what circumstances laparotomy should be performed. The symptoms of tuberculosis of the peritoneum in infancy and

in early childhood are unsatisfactory and obscure. The tuberculin reaction is therefore of value when such reaction can be obtained, although negative evidence is not decisive. When there is a localized tuberculous process in the peritoneum which is chronic in its course such patients should be treated by laparotomy. The most favorable of these cases for treatment by laparotomy is the fibrous form. In the so-called ulcerative tuberculosis of the peritoneum, tuberculous deposits are usually found elsewhere than in the peritoneal cavity. These cases as a rule cannot be benefited by laparotomy.

DR. J. M. DODSON of Chicago, emphasized the value of tuberculin as a diagnostic measure, and called attention to the X-ray which had been used in a number of cases as a remedial agent.

CEREBROSPINAL FEVER.

DR. J. P. CROZER GRIFFITH of Philadelphia, read this paper, in which he said that this is a disease which is prone to vary, especially toward certain types. This variation, on account of the often obscure symptoms, in many instances renders the diagnosis difficult or impossible. Some are of the fulminant type, while others are so mild that the child seems scarcely ill. In some of the patients the effect of the germ appears to be localized more upon other regions of the body than upon the brain and spinal cord. Three family epidemics were reported in detail illustrating this tendency to variation.

DR. I. A. ABT of Chicago, called attention to the relation of cerebrospinal fever to deaf mutism.

DR. T. M. ROTCH of Boston, spoke of the great difficulty in making a diagnosis oftentimes in the earlier periods of life. Marked symptoms of either cerebral or spinal nature are absent in many cases. There may occur cases without signs of rigidity and without opisthotonus. A lumbar puncture is exceedingly important for diagnosis, but in order to be of value it must be made in the first few days of the disease. If this procedure be delayed the conditions may have so changed that it loses its value. The Widal reaction may show the presence of an accompanying typhoid fever or may indicate that the child had typhoid fever in the past. It is exceedingly important to make the diagnosis in cases occurring in private practice. The prognosis in chronic cases is bad, and the disease may leave the child mentally and

physically imperfect. The child indeed may become idiotic. The disease sometimes abates, but while cerebrospinal meningitis is always a dangerous disease, there is always some hope of complete recovery.

TYPHOID FEVER IN INFANCY.

DR. E. F. BRUSH of Mt. Vernon, N. Y., presented an interesting case of typhoid fever in an infant.

DR. A. C. COTTON of Chicago, dissented from the statement that children were exempt from typhoid fever because they did not drink water. Even the child *in utero* may develop typhoid fever, and the nursing child oftentimes acquires this disease.

DR. GRIFFITH of Philadelphia, said that there were 418 cases of typhoid in infants and young children on record.

SERUMTHERAPY.

DR. EDWIN ROSENTHAL of Philadelphia, presented a paper in which he reviewed the general status of the serums used in the treatment of disease.

DR. A. C. COTTON of Chicago, said that his experience with antitetanic serum had proved to be unsatisfactory. It is doubtful whether the serum has any effect. Croupous pneumonia does not have that formidable aspect to him as it has to most physicians. With good hygiene most patients recover with very little medication; hence serum treatment yields clinical evidence of very little value, and in catarrhal pneumonia, with its many uncertainties, he thinks serum treatment of questionable value.

Second Day—June 11th.

ACUTE GASTROENTERITIS OF INFANTS.

DR. MARGARET TAYLOR SHUTT of Springfield, Ill., said that the heat of summer depresses the child's vitality and increases thirst, thereby causing overfeeding and the more easy production of fermentation in the food. Perhaps the greatest cause of summer complaint in children is improper feeding, or overfeeding. Fever, prostration, vomiting, frequent and abnormal stools are the first symptoms, and the diagnosis can only be mistaken in the beginning for the onset one of the exanthemata. The prognosis depends first on the child's vitality, and second on whether it receives intelligent care and treatment. The most important

points in the treatment are to keep the child cool and clean, and to give a limited quantity of the proper sort of food. During the attacks absolutely all milk food should be stopped, the whole alimentary tract thoroughly cleaned out, fever reduced by sponging the body and irrigating the colon. After-treatment is most important.

MILK IDIOSYNCRASIES IN CHILDREN.

DR. LOUIS FISCHER of New York, in his paper said that he meant to speak of those cases that will not digest milk at all. They are poisoned by it in any form, and seem to have an idiosyncrasy against milk almost analogous to a drug idiosyncrasy. Many individual peculiarities are noted. There seem to be a constant irritability of the digestive tract and an absence of normal assimilative power, accompanied with intestinal indigestion of milk, cheesy curds in the stools, vomiting, nausea and frequently colic. What food should be given until the acute symptoms subside is sometimes a troublesome problem. Breast-milk is just as incompatible and just as frequently so as cow's milk. He reported excellent results in a series of cases from the use of a malt soup, the formula of which is as follows: Take of wheat flour 50.0 (about 2 ounces). To this add 11 ounces of milk. Soak the wheat flour thoroughly and rub it through a sieve or strainer. Put into a second dish 20 ounces of water to which add 3 ounces of malt extract; dissolve the above at a temperature of about 120° F., and then add 10 c. cm. of 11-per-cent. potassium carbonate solution. Finally mix all of these ingredients and boil. This gives a food containing albuminoids 2.0 per cent., fat 1.2 per cent., carbohydrates 12.1. There are in this mixture vegetable proteids 0.9. This food was very well borne and gave no discomfort.

IMPROVEMENT OF BREAST-MILK AND PROLONGATION OF LACTATION.

DR. THOMAS S. SOUTHWORTH of New York, said that full chemical analyses of breast-milk are important in judging the quality of milk, but are by no means imperative. The specific gravity affords a simpler method of judging its quality. The improvement of the quality and quantity of breast-milk is not a complicated matter if begun early enough. Faulty or deficient milk on the part of the mother is often dependent upon an unsuitable diet or lack of open air exercise. Cases of early failures of breast-

milk, when the supply is diminished or disappears in the first week or two, may often be prevented and the milk completely restored provided the woman is properly managed. Bad nursing habits and faulty maternal diet are the chief causes of trouble later on. To insure the mother having a full supply of milk plenty of fluid should be drunk during the first week of the baby's life. Throughout the period of lactation she should have, first, plenty of good cow's milk. This should be taken every day, as it is the most important; second, corn-meal gruel, and, third, plenty of water, and for a beverage, cocoa. Tea is prohibited. The balance of the diet should be plain, unstimulating and nutritious. Beer is not beneficial and has been found to be even harmful. The same may be said with regard to the malt. Constipation and anemia must be corrected and sleep, exercise and fresh air provided. The importance of breast-milk for the child makes it advisable to continue nursing during the greater part of the first year, either with or without the assistance of a few bottle feedings. Exclusive bottle feeding causes a larger mortality than where at least partial breast feedings are maintained.

INFANT FEEDING.

DR. ALEXANDER McALLISTER of Camden, N. J., said it is important to have a proper conception of the many difficulties that beset the feeding of the child, both in the food-making and in selecting the proper food for the child in question. It should be remembered that cow's casein is not mother's casein, and that even though cow's milk may be intelligently modified it can never be made like mother's milk.

DR. C. F. WAHRER of Fort Madison, Ia., said the percentage of deaths among artificially fed children is far greater than among those fed on breast-milk. He referred to the great advances that had been made by enterprising physicians and the dairymen in improving the milk-supply. He agreed that the best substitute for mother's milk is cow's milk, as pure as can be gotten.

DR. CHARLES G. KERLEY of New York, said that most children can be fed on properly modified milk, but it must not be expected to feed every child alike. The milk must be changed as the child advances. When fed artificially the child must be started on very low percentages. These should be increased, at the same time they must be very carefully watched. The patient must be fed

according to the information given by the napkin. A careful observation of this and its characteristics is absolutely essential for an intelligent understanding of the condition of the child. There are some patients that cannot be fed on milk at first, particularly those that have been experimented upon with all kinds of food until their digestion is so impaired that they cannot tolerate cow's milk and sometimes are not able to do so for a long time. In a series of experiments for improving the milk of the mother he found the malt extracts and the malt preparations were more effectual than anything else in bringing up the percentage of fat.

DR. J. LOVETT MORSE of Boston, thought that milk idiosyncrasies are rare and are due, when found, to the improper modification of milk either for the time being or some time in the past. As to malt extract, that is the best single thing to increase the quality of breast-milk. Breast-milk, even if artificial feeding has to be resorted to, should not be given up, because the breast-milk ferments may still be retained and are important in the digestive process of the child.

DR. J. P. C. GRIFFITH of Philadelphia, said that there is no doubt that in the majority of cases physicians begin with the percentages too high for the baby. In regard to the question of vomiting, the fact is lost sight of that the dilution is not sufficient and the percentage of fat is too high. Many of the idiosyncrasies of milk are due to the fact that the child, through mismanagement, has lost its digestive power. All children who have had such digestive disturbances will relapse at some time. It is a great mistake to change the food with every little variation of the digestive power of the child.

DR. A. C. COTTON of Chicago, said that no one can tell just exactly how to feed the individual baby under treatment. If there were not means of modifying milk at all and not any methods of feeding a child artificially, it would be the greatest boon ever conferred on humanity, because it would drive all mothers to the necessity of nursing their own babies and giving Nature's own food and would save more lives than all the doctors in the land. If every mother were assured that her baby could not live and grow to maturity unless it were nursed at the breast, it would be the greatest incentive possible for mothers to nurse their babies instead of shirking their duty.

DR. A. JACOBI of New York, said the point of value that

has been learned in the last ten years is that cow's milk, which is pure, fresh and germ free, is the only food a child should be fed on artificially with proper modifications. There is no excuse for allowing a newborn baby to lose its weight during the first week of its life, and water or a small quantity of some simple food may be given. Plenty of water flushes out the kidneys and the excretory organs and prepares the child for the proper handling of its food. There is no one special method of feeding that is absolutely the true one to the exclusion of all others. In each case the food must be suited to the individual.

ADENOIDS.

DR. W. FREUDENTHAL of New York, presented a paper, giving a consideration of both acute and chronic inflammation of adenoids with the indications for treatment.

THE TREATMENT OF ACUTE EARACHE IN YOUNG CHILDREN.

DR. GEORGE L. RICHARDS of Fall River, Mass., said that earache in children is a most troublesome and annoying affection.

The author advocated a medicated gelatoglycerin bougie, which he has been using for some time with excellent results. The bougie is composed of the following ingredients: Carbolic acid, 7 m.; fluid-extract of opium, 6 m.; cocaine, 3 gr.; atropin sulphate, 3 gr.; water, 52 m.; gelatin, 18 gr.; dehydrated glycerin, 158 gr., a sufficient quantity to make 42 bougies. This gives to each bougie carbolic acid one-sixth m. and fluid-extract of opium one-seventh, cocaine one-fourteenth, gr., atropin sulphate one-fourteenth grain. These small bougies are particularly useful because they may be wrapped in tinfoil and may be inserted by the mother.

ANGIOSARCOMA.

DR. A. C. COOK of Chicago, read a paper on this subject and presented specimens. The child was three and one-half years old. The tumor involved both the kidneys and filled up almost the entire abdominal cavity.

CLINICAL FEATURES OF SOME OF THE ANEMIAS OF CHILDHOOD.

DR. W. C. HOLLOPETER of Philadelphia, said that the great primary cause of anemia in childhood and the least recognized is dental decay. The result of dental decay is to infect the mouth and stomach, poison the gastrointestinal tract, producing a gen-

eral catarrhal condition, deteriorating the blood and rendering the nervous system of the growing child unstable. The child suffering from anemia and catarrhal affection of the gastro-enteric tract cannot grow and develop properly. Hygiene of the mouth is important. The second unrecognized factor in the anemias of childhood is nasal stenosis, which produces mouth-breathing. The third factor contributing to anemia in children is eye-strain and may be prevented and corrected by proper glasses.

RETROPHARYNGEAL ABSCESS IN INFANCY.

DR. JOHN LOVETT MORSE of Boston, gave the clinical history of these cases, which usually occur in the second or third year of life and are almost always secondary to disease of the adenoids. In the diagnosis the author emphasized the importance of digital examination of the throat. Suppuration rarely takes place in more than one lymph node, though several may be involved. Retropharyngeal abscess is always preceded by retropharyngeal adenitis. Koplik had found streptococci in his cases. When suppuration occurs it develops in five or six days and the abscess formation is in the lateral wall of the pharynx rather than in the back. Several interesting cases were reported showing that the prognosis in those cases treated by incision and evacuation of the pus is very good, with a mortality of 5 per cent., while if they are not incised general infection may take place with an unfortunate result.

DR. I. A. ABT of Chicago, commented upon the much greater frequency of this affection in Europe.

DR. C. G. KERLEY of New York, reported a case in which the child suddenly ceased breathing upon the introduction of the finger and making downward pressure.

DR. J. P. C. GRIFFITH of Philadelphia, emphasized the frequency with which retropharyngeal abscess was overlooked, and this despite the peculiar position of the head and the sputtering respiration.

DR. FRANK X. WALLS of Chicago gave as a suggestion that it was not improbable that many children having retropharyngeal abscess were also victims of the lymphatic constitution, and that the reported sudden deaths might be explained in this way.

DR. W. S. GOTTHEIL of New York, and DR. G. WENDE of Buffalo, gave a lantern demonstration of skin diseases.

REPORT OF A CASE OF BULBAR PARALYSIS.

DR. A. C. COTTON of Chicago, reported a case occurring in a girl of eleven and following diphtheria which had occurred several years before. Diagnosis had been difficult for some time.

Third Day—June 12th.

SYNOSTOSIS OF THE SKULL WITH UNIVERSAL CALCIFICATION OF
THE ARTERIES IN A BOY THREE YEARS OF AGE.

DR. DAVID RIESMAN of Philadelphia, said that arterial diseases in children are not nearly so rare as commonly supposed; they frequently follow some of the infectious diseases. The case reported was remarkable on account of the synostosis of the cranial sutures. It was pronounced an extraordinary case of malnutrition. Treatment was not of any avail. The author thinks that the malnutrition in the case was perhaps secondary to a congenital abnormality. He referred to the interesting analogy between cases of this sort and certain forms of infantilism and cretinism. An interesting feature of this case was the atrophic condition of the thymus gland, but what bearing this had upon the condition present the author is unable to say.

SPONTANEOUS HEMORRHAGE IN THE NEWBORN.

DR. I. A. ABT of Chicago, read this paper. He said that there are two kinds of hemorrhage observed in the newborn child, traumatic and spontaneous. The paper dealt wholly with the spontaneous variety and was accompanied with the report of 10 interesting cases. There may be a variety of causes producing hemorrhage. It is possible it may be from any one of a number of infections. One case was directly traceable to hereditary syphilis. The recent tendency has been to study these cases along bacteriological lines, and there are numerous micro-organisms that are thought to be causative factors. There are, however, many conditions as predisposing factors. Changes in the blood-vessels themselves may favor it. The character of the hemorrhage is in some slow and oozing and in others profuse at intervals. The hemorrhage may occur from the umbilicus, under the skin, from the nose, mouth, vagina, stomach, bowel, ear, etc. The temperature varies and in one case ran as high as 104° F., and remained elevated during the entire course of the disease. In another it remained subnormal. Cyanosis was a late manifestation in 2 cases. In a few icterus occurred and in one convulsions and mus-

cular twitchings. Evacuations from the bowels were very offensive before the occurrence of the hemorrhages. As to treatment internal remedies have no influence on the disorder nor have local styptics any permanent value. The use of gelatin deserves some mention. The author concludes from a number of experiments on animals that the subcutaneous injection of gelatin will produce a toxemia in children. The nature of these toxins is not known, but they should be considered as ptomaines. No further proof is now needed that gelatin causes a rapid coagulation of the blood. Undoubtedly it can be given with good results by the stomach, but it is very questionable whether it should be given by the subcutaneous method.

DR. ROSA ENGLEMANN of Chicago, suggested that inasmuch as infections were thought to play such a part in the hemorrhages the germs found should be inoculated and cultures made, so as to arrive at some classification of them. In addition to all these supposed infections there might be back of it all some constitutional trouble like syphilis. Certainly syphilis plays a most important part.

DR. HOLMES of Chicago, related his experiences with gelatin subcutaneously in 2 obstetrical cases without reaction and did not see why it might not be used in children.

DR. A. JACOBI of New York, said that he had seen a great deal more of hemorrhages in the newborn fifteen or twenty years ago than he does now; he also saw at that time much more puerperal sepsis. At that time he almost considered the tendency to hemorrhage in the newborn a natural condition. He thinks puerperal sepsis has much to do with the occurrence of hemorrhage in the newborn. Another important cause is the insufficiency of the blood in certain conditions of anemia. It may also depend upon the structure of the blood-vessels themselves. The interna of the vessels are not fully developed. Hemorrhage in the newborn is very apt to be copious, because there is a great deal of hemoglobin in the blood, and yet it is less dense than in the adult. In the hematoma found after hemorrhages the blood in the child will be found uncoagulated, while in a similar case in the adult the blood would have been found coagulated. Meningeal hemorrhage is quite frequent and the speaker thinks most of the deaths occurring in the first day of life are due to this cause. Most of the cases of hemorrhage are post-natal, but he thinks puerperal sepsis is the most important cause.

SPORADIC CRETINISM IN CHILDREN.

DR. ENGLEMANN of Chicago, said that cretinism is relatively much more frequent in children than was formerly supposed. It passes oftentimes unrecognized. The first case was reported by Jacobi. Koplik has pleaded most earnestly for its recognition. Heredity seems to be a factor in the adult form, but this has not been determined in the child. There is a growing opinion as to its infectious nature, but no very positive data have been obtained. The interdependence of nervous control over secretion is recognized as necessary to healthy functioning, but it is not certain whether disorder of such control is the cause. The process is a slow delay of the bony development of the body and a consequent dwarfism.

DR. SHELLY of Kansas, spoke of a case that had had thyroid extract for seven years.

DR. A. JACOBI of New York, emphasized the importance of combining the different glands in the treatment. Many of the unsatisfactory results of glandular treatment are because the case is treated in only one direction. After having seen that a single ductless gland has been given without results, a combination with other glands should be made. As a rule, thyroid feeding will be sufficient for myxedematous conditions. There is often a shortening of the cranium, producing as a result a synchondrosis of the bones. Many of these are due to rickets, which runs its course before birth. When the child is born there is a shortening of the bones at the base of the cranium because of the ossification of the occipital and sphenoid. The cases that have a short base of the cranium will be improved the least.

DR. DAVID RIESMAN of Philadelphia, called attention to the fact that it was in this class of cases that preventive medicine might achieve its most brilliant results. The term athyria employed by the author should be used to designate functional athyria and not anatomical athyria.

DR. ENGLEMANN of Chicago, referring to the correlation of the glands, said that the combination of the pituitary with the thyroid showed quite a difference in the growth of the patient.

CHLOROSIS.

DR. C. F. WAHRER of Fort Madison, Ia., said that the diagnosis and treatment of this affection are easy for the skilled clin-

cian, but there are conditions which may be mistaken for it or which may complicate it. The author reviewed the various theories of the etiology of chlorosis and described the early and latent forms among adolescents. There is no relation, he thinks, between this disease and phthisis.

Discussion by Drs. Walls of Chicago and Darnell of Atlantic City, N. J.

DERMOID TUMORS IN CHILDREN.

DR. S. W. KELLEY of Cleveland, reports 2 cases, 1 a dermoid tumor occurring in the testicle of a boy of two and a half years and the other in the ovary of a girl of eight.

SUDDEN DEATH IN INFANTS WITH LYMPHATIC CONSTITUTION.

DR. F. X. WALLS of Chicago, reported 2 cases of so-called thymic sudden death in infants and presented a brief review of the literature on the subject, showing the relation of sudden death in infants to the lymphatic constitution.

DR. SHAW of Albany, N. Y., reported 3 cases with enlarged thymus, but where no pressure on the trachea could be found.

RECOGNITION AND PROMPT REMOVAL OF POST-NASAL ADENOIDS IN CHILDREN.

DR. LOUIS J. LAUTENBACH of Philadelphia, pointed out the great frequency of this trouble and showed that it is among the poorly-nourished and scrofulous that adenoids are most commonly found. It is also oftentimes found in deaf-mutes and perhaps is the cause of their deaf-mutism in many cases. The author mentioned the various methods of determining their presence and modes of making the examination. The nature of the growths varies and presents different appearances. Many constitutional ailments follow in the wake of adenoids and their obstructive influences in respiration are productive of many bodily ailments. The posterior and upper walls of the nasopharyngeal space are by no means always smoothly and regularly arched. There are frequently ridges observed on the posterior and upper pharyngeal wall and this fact is important in the method of operating. The author does not usually use an anesthetic in operating nor does he use curette, forceps and cauteries, but operates by scraping the mass out with the finger-nail, or steel finger-nail. He lays stress on knowing the exact condition of the pharyngeal vault

after the operation, and pointed out the necessity of constitutional treatment in all cases of post-nasal adenoids.

DR. W. C. HOLLOPETER of Philadelphia, thought the majority of workers in this field preferred to operate without anesthesia.

DR. S. W. KELLEY of Cleveland, also commended the method. As the artificial finger-nail sometimes slips off, it is prudent to secure it firmly by a turn of bandage around its lower ring and several turns about the operator's finger. This also prevents the child from biting the finger.

ELECTION OF OFFICERS.

Officers elected were: Dr. John C. Cook of Chicago, Chairman, and Dr. Thomas S. Southworth of New York, Secretary.

On the Question of Involvement of the Ovaries in Epidemic Parotiditis in Girls.—By Dr. I. V. Troitzky (*Rousky Vratch*, April 6, 1902). Localization of the disease in the ovaries is much more frequent than is usually assumed. The ovaries are less frequently affected, according to most authors, than the testes, but this is due to the fact that the disturbances in girls are comparatively slight, and that, owing to the anatomical conditions, it is very difficult to make a diagnosis of ovarian inflammation in children. There is no doubt, however, that local ovarian pain, tenderness, and swelling do occur in parotiditis in girls, in a considerable proportion of cases. The cases cited here show unmistakably the intimate connection between the ovaries and the parotids in this infectious disease. The pathology of the ovaritis that occurs in this disease has not been studied with definite results, but it is probably a parenchymatous inflammation, such as occurs in other organs in infectious conditions, and possibly there is also some periovaritis. It is possible that atrophy of the ovary may occur as a consequence, as a similar process occurs in the testes under the same circumstances. As a rule, the ovaritis of mumps is observed in girls who have passed the age of ten years, but it may be present in younger girls. It is important in every case of mumps in growing girls to inquire into the state of the genital organs. If local counter-irritants, such as applications of iodin, cold compresses, or even vesicatories, are not necessary, the girls should be at least kept in bed with bandaged abdomens for several days, and the state of the bowels should be carefully looked after. If such care is given to these cases, we can, in the majority of instances, be assured that more serious pathological changes will not take place in the ovaries.—*New York Medical Journal.*

THE MILK COMMISSION OF THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

This Commission which has now been in existence for some two years was given the possibility of success by the co-operation of the Rockefeller Research Fund which aided this work at an expense of fifteen hundred dollars. It was originally designed to attempt to improve the quality of some of the better supplies of milk in New York. It has gradually broadened its scope so that now it is controlling a considerable amount of bottled milk sold in New York and is moreover supported entirely by the dairymen who benefit by its labors.

The Commission consisting originally of four members was enlarged in December, 1901, by the addition of six other members, the active work of the Commission being deputed to an executive committee of five. It was decided that two grades of milk should come under the supervision of this Commission. The lower grade was termed *inspected milk*; this milk was designed to be produced in a cleanly and sanitary manner without imposing upon the producer any expensive care which was not considered absolutely necessary. The requirements for the production of this milk are stated below, and it will be observed that a good quality is insured by the requirement of 4 per cent. butter-fat, while a hundred thousand bacteria are allowed in summer and sixty thousand in the winter months. This bacteriological standard is merely tentative: it is believed it can be considerably reduced. It should also be observed that the granting of the certificate for inspected milk depends upon an inspection of the dairy by the Commission's inspector as well as the bacteriological examination of the milk and that both the inspection and the bacteriological examination must be satisfactory in order that a certificate be granted. The requirements for inspected milk are as follows:

1. **THE BARNYARD.**
 - (a) It must contain no manure in summer and none in contact with the stable in winter.
 - (b) It must be well drained and kept reasonably clean.
2. **THE STABLES.**
 - (a) The ventilation and light must be sufficient for the number of cows stabled, so that the barn shall be light and the air never close.

- (b) The floor shall be of wood or cement.
- (c) The ceiling shall be tight, if a loft above is used.
- (d) Basins, hand brushes, clean water, soap and clean towels shall be provided in the barn or adjacent dairy room.
- (e) The stable shall be whitewashed in the fall, and in the spring if necessary.
- (f) A sufficient number of lanterns shall be provided to allow the milking to be carried on properly.
- (g) Clean the ceiling and sidings once a month.
- (h) The beddings shall be shavings, saw-dust, dried leaves, cut straw or other material that meets with the approval of the Commission.
- (i) The soiled bedding must be removed daily.
- (j) The manure must be removed daily from the stalls and open manure-gutter. If a covered manure-gutter is used, it must be kept in a sanitary condition.
- (k) The application of land-plaster or lime on the floor daily is recommended.
- (l) Sweep the entire floor outside of the stalls daily at least an hour before milking is begun.

3. WATER SUPPLY.

Pure water must be used for all purposes. It must be accessible and abundant.

4. THE COWS.

- (a) Discard milk containing mucus or blood and that from any diseased cow.
- (b) Reject milk from any animal forty-five days before and six days after calving.
- (c) The food given must be suitable both in amount and kind and must not give a disagreeable flavor to the milk.
- (d) Keep the cows clean on flanks, belly, udder and tail.
- (e) Clip long hairs about udders and clip the tail sufficiently to clear the ground.
- (f) The cows must be kept from lying down between the cleaning and milking. The best means of accomplishing this is by throat latches.
- (g) Clean the udder thoroughly before milking.

5. THE MILKERS.

- (a) No milker or assistant shall have any connection with the milk at any stage of its production if he has any communicable disease, or if he has been exposed to Scarlet Fever, Diphtheria, Typhoid Fever or Smallpox.
- (b) After having everything prepared for milking, thoroughly wash the hands with soap, water and brush, so that they may be clean when milking is begun.
- (c) The hands and teats must be kept dry during milking. If they become moistened with milk, they must be wiped dry with a clean towel.
- (d) Suitable clean outer garments, such as overalls and jumpers, must be put on before milking.

6. UTENSILS.

- (a) Strainers, whether metal, gauze or cotton, must be absolutely clean when used for straining milk.
- (b) All dairy utensils must be absolutely clean and free from dust.

7. THE MILK.

- (a) The milk must not be adulterated in any way.
- (b) It must average four per cent. of butter-fat.
- (c) Cooling must be begun within thirty minutes after the milking. The temperature of the milk must be reduced to 55° Fahrenheit within two hours after milking and to 50° Fahrenheit within three hours and kept below that temperature until delivered to the consumer.
- (d) When delivered to the consumer the milk must not average over 100,000 bacteria per cubic centimeter from May 1st to September 30th, and not over 60,000 bacteria per cubic centimeter from October 1st to April 30th. If the Commission's requirements are fulfilled, the bacteria will not be in excess of the number permitted.

8. INSPECTIONS.

- (a) The farms which furnish "Inspected" milk, must always be open to inspection by the Commission.
- (b) Samples of milk must be regularly submitted for bacteriological examination once a month.

DR. WALTER L. CARR,	DR. WM. P. NORTHRUP,
DR. HENRY D. CHAPIN,	DR. WM. H. PARK,
DR. ABRAHAM JACOBI,	DR. GEO. M. SWIFT,
DR. ALEXANDER LAMBERT,	DR. JOSEPH E. WINTERS,
DR. EDWARD K. DUNHAM, <i>Chairman</i> ,	
DR. ROWLAND G. FREEMAN, <i>Secretary</i> ,	
205 West Fifty-seventh Street.	

March 18, 1902.

Some of this milk may be bought in New York at wholesale for about five cents a quart, while at retail it sells in bottles for eight cents a quart, the ordinary price for milk that is produced without scientific supervision.

A higher grade of milk called *certified milk* may also receive the approval of the Commission. In order to receive this label the dairyman must produce milk containing on the average not more than thirty thousand bacteria per c.c. he must carry out all the precautions required for the production of inspected milk and must also sterilize all dairy utensils before each milking, must remove the manure from the stalls twice daily, must groom each cow daily and wipe the udder with a damp cloth before each milking. The full requirements for the production of this milk are as follows:

1. THE BARNYARD.—The barnyard should be free from manure and well drained, so that it may not harbor stagnant water. The manure which collects each day should not be piled close to the barn, but should be taken several hundred

feet away. If these rules are observed not only will the barnyard be free from objectionable smell, which is always an injury to the milk, but the number of flies in summer will be considerably diminished. These flies in themselves are an element of danger, for they are fond of both filth and milk, and are liable to get into the milk after having soiled their bodies and legs in recently visited filth, thus carrying it into the milk. Flies also irritate cows, and by making them nervous reduce the amount of their milk.

2. THE STABLE.—In the stable the principles of cleanliness must be strictly observed. The room in which the cows are milked should have no storage loft above it; where this is not feasible, the floor of the loft should be tight, to prevent the sifting of dust into the stable beneath. The stables should be well ventilated, lighted and drained, and should have tight floors, preferably of cement. They should be whitewashed inside at least twice a year, and the air should always be fresh and without bad odor. A sufficient number of lanterns should be provided to enable the necessary work to be properly done during dark hours. There should be an adequate water supply and the necessary wash-basins, soap and towels. The manure should be removed from the stalls twice daily, except when the cows are outside in the fields the entire time between the morning and afternoon milkings. The manure gutter must be kept in a sanitary condition, and all sweeping and cleaning must be finished at least twenty minutes before milking, so that at that time the air may be free from dust.

3. WATER SUPPLY.—The whole premises used for dairy purposes, as well as the barn, must have a supply of water absolutely free from any danger of pollution with animal matter and sufficiently abundant for all purposes and easy of access.

4. THE COWS.—The cows should be examined at least twice a year by a skilled veterinarian. Any animal suspected of being in bad health must be promptly removed from the herd and her milk rejected. Never add an animal to the herd until it has been tested with tuberculin and it is certain that it is free from disease. Do not allow the cows to be excited by hard driving, abuse, loud talking, or any unnecessary disturbance. Do not allow any strongly flavored food, like garlic, which will affect the flavor of the milk, to be eaten by the cows.

Groom the entire body of the cow daily. Before each milking wipe the udder with a clean damp cloth, and when necessary wash it with soap and clean water and wipe it dry with a clean towel. Never leave the udder wet, and be sure the water and towel used are clean. If the hair in the region of the udder is long and not easily kept clean, it should be clipped. The cows must not be allowed to lie down after being cleaned for milking until the milking is finished. A chain or rope must be stretched under the neck to prevent this.

All milk from cows sixty days before and ten days after calving must be rejected.

5. THE MILKERS.—The milker should be personally clean. He should neither have nor come in contact with any contagious disease while employed in milking or handling milk. In case of any illness in the person or family of any employee in the dairy, such employee must absent himself from the dairy until a physician certifies that it is safe for him to return.

Before milking, the hands should be thoroughly washed in warm water with soap and a nail brush and well dried with a clean towel. On no account should the hands be wet during the milking.

The milking should be done regularly at the same hour morning and evening, and in a quiet, thorough manner. Light colored washable outer garments should be worn during milking. They should be clean and dry, and when not in use for this purpose should be kept in a clean place protected from dust. Milking stools must be kept clean. Iron stools, painted white, are recommended.

6. **HELPERS OTHER THAN MILKERS.**—All persons engaged in the stable and dairy should be reliable and intelligent. Children under twelve years should not be allowed in the stable during milking, since in their ignorance they may do harm, and from their liability to contagious diseases they are more apt than older persons to transmit them through the milk.

7. **SMALL ANIMALS.**—Cats and dogs must be excluded from the stables during the time of milking.

8. **THE MILK.**—The first few streams from each teat should be discarded, in order to free the milk ducts from milk that has remained in them for some time and in which bacteria are sure to have multiplied greatly. If in any milking a part of the milk is bloody or stringy or unnatural in appearance, the whole quantity of milk yielded by that animal must be rejected. If any accident occurs by which the milk in a pail becomes dirty, do not try to remove the dirt by straining, but reject all the milk and cleanse the pail. The milk pails used should have an opening not exceeding 8 inches in diameter.

Remove the milk of each cow from the stable immediately after it is obtained to a clean room and strain it through a sterilized strainer.

The rapid cooling of milk is a matter of great importance. The milk should be cooled to 45 degrees within one hour. Aeration of pure milk beyond that obtained in milking is unnecessary.

All dairy utensils, including bottles, must be thoroughly cleansed and sterilized. This can be done by first thoroughly rinsing in warm water, then washing with a brush and soap or other alkaline cleansing material and hot water, and thoroughly rinsing. After this cleansing, they should be sterilized with boiling water or steam and then kept inverted in a place free from dust.

9. **THE DAIRY.**—The room or rooms where the bottles, milk pails, strainers and other utensils are cleaned and sterilized should be separated somewhat from the house, or when this is impossible have at least a separate entrance, and be used only for dairy purposes, so as to lessen the danger of transmitting through the milk contagious diseases which may occur in the home.

Bottles, after filling, must be closed with sterilized discs, and capped so as to keep all dirt and dust from the inner surface of the neck and the mouth of the bottle.

10. **EXAMINATION OF THE MILK AND DAIRY INSPECTION.**—In order that the dealers and the Commission may be kept informed of the character of the milk, specimens taken at random from the day's supply must be sent weekly to the Research Laboratory of the Health Department, where examinations will be made by experts for the Commission, the Health Department having given the use of its laboratories for this purpose.

The Commission reserves to itself the right to make inspections of certified

farms at any time, and to take specimens of milk for examination. It also reserves the right to change its standards in any reasonable manner upon due notice being given to the dealers.

This certified milk is sold by the different producers to consumers at prices varying from ten to twelve cents a quart.

The work of the Commission is for the most part done by one inspector paid by the Commission, who visits the dairies, renders a typewritten report on the conditions found, examines the milk bacteriologically under the supervision of Dr. William H. Park, at the research Laboratory of the Health Department. A sample report on one of the dairies receiving the certificate of this Commission may be of interest.

Dealer _____

Farmer _____

Barnyard—Dry and free from manure.

Barn—High; no loft. Cupola along whole top of roof, with ventilating windows near together.

Floor—Cement; sides and ceiling matched boards with hard oil finish.

Mangers with bow fasteners.

Kept very clean; stalls cleaned daily.

Bedding of sawdust.

Basin, brush and towels for hands in barn.

Water supply—Well; free from contamination.

Cows—35; clipped; groomed daily; brushed and wiped with a damp cloth before milking.

Kept standing after cleaning.

Food—Hay, ensilage, ground grain.

Milkers—Wash hands before milking and after milking each cow; put on clean suits; have cloth for teats.

Milk—Drawn into pails with small openings; covered as soon as milker leaves the cow, and taken to dairy.

Poured over Champion Cooler, from which it all flows at 41° F. or below, most of it at 38° F., within ten minutes after milking.

Flows from Cooler into 40-quart can for mixing, and is poured into a pail with lip, from which it is poured into bottles.

Bottles are packed at once in covered boxes and iced. Boxes of morning's milk are set into ice-chest and re-iced before they are taken to the train at night.

Dairy—at end of barn, with passage-way between.

Has washing room separate from bottling room.

Has boiler and sterilizer large enough to sterilize all the utensils.

Everything used about the milk is sterilized.

The milkers put on clean white suits and wash hands and face very carefully.

Milk reaches consumer twelve and twenty-four hours after production.

Twelve and thirteen cases are now sent in.

The charges made to the farms furnishing certified milk vary from eight to fifteen dollars per month, while the farms furnishing inspected milk, being usually in groups surrounding a creamery, pay only one dollar a month and certain expenses.

Concerning the success of the work of this Commission it may be stated that the dairymen who have been producing milk under the supervision of the Commission appear to be well satisfied with the increase in business and higher price which they receive for the milk on account of the security offered to the consumer by the certificate and have all apparently paid gladly the monthly fee charged by the Commission. At the present time twelve dairies, representing 600 cows, are producing certified milk, while five dairies, representing 700 cows, are producing inspected milk. Several dairies have applied for the certified grade and several for the inspected, who are now improving their dairies so that they may be considered satisfactory by the Commission.

Milk dealers who are selling certified milk are: Briarcliff Farms, Century Milk Co., T. W. Decker & Sons, Hyde Park Milk Co., Locust Farms Milk Co., Sheffield Farms (Harlem), Slawson Bros., Smith's Farm Dairy, Sugar Loaf Dairy and the Meadow Brook Dairy.

Dealers who can supply Inspected milk are: L. L. Campbell & Brother, Wheat & Skinner, Century Milk Co., Locust Farms Co., Slawson Bros.

Pyrogallol in the Eczema of Children.—L. Leistikow (*Bulletin General de Therapeutique*, May 30, 1901) employs pyrogallolic acid with excellent results in the treatment of eczema in children. An ointment containing from $\frac{1}{2}$ per cent. to 2 per cent. of pyrogallol is applied to the affected parts. This strength may be gradually increased to 2 per cent. or 3 per cent. in severe cases. Pyrogallol was always well borne when used in this way. The urine should be watched when this drug is used, although no discoloration occurred in Leistikow's experience. Should any erythematous eruption of the skin suddenly appear during treatment, an ointment of zinc oxid or of ichthyl should be applied for a few days, and then a return made to the pyrogallol.—*American Medicine*,

Current Literature.

MEDICINE.

Dauchez, H.: The Complications of Varicella, Especially Nephritis. (*Arch. de Méd. des Enf.* Vol. v., No. 4.)

In a series of 60 cases of varicella only 2 were complicated by cyclic albuminuria. In another series of 30 cases, 1 case of transitory albuminuria occurred, and 1 in which the albuminuria lasted several weeks. Both cases were almost or entirely afebrile in character and the eruption was discrete and without suppuration. One case with a confluent eruption ran its course without any renal complication. There is no constant relationship between the presence of a suppurative eruption in varicella and the appearance of albuminuria.

Bolton, C.: The Heart in Diphtheria. (*The Edinburgh Medical Journal.* Vol. liii., No. 562.)

The majority of deaths from diphtheria are the result of heart failure. In acute, uncomplicated diphtheritic toxemia death usually occurs within the first fortnight of the disease, life being prolonged a day or two over this period in a few cases; hence the patient can never be said to be safely over the acute stage until after the first three weeks. Cardiac failure in diphtheria either leads to death by syncope, which may be sudden, but is usually preceded by a progressive failure of the heart, or it may cause some disturbance in the regularity and alteration in the frequency of the pulse, with or without the physical signs of cardiac dilatation. Edema and other symptoms of heart failure have been described, but must be extremely rare, if they ever occur. Heart failure may lead to death and may be due to acute diphtheritic toxemia, or, rarely, to cardiac thrombosis. During convalescence death from heart failure is usually associated with paralysis, but it is not so uniformly fatal as in the acute stage. Sudden death from syncope may occur at any stage, the most alarming cases being those which occur during convalescence, when the patient is supposed to be out of danger. They are referable to some strain which has been thrown upon

a heart which is unprepared to meet it. It is probable that if the heart and pulse were carefully examined in many of these cases, that some signs would almost invariably be found.

Cardiac failure not leading to death may occur during the acute stage and during convalescence. It is commonly noticed between the end of the first and third weeks. The pulse may remain irregular for only a little over a week, for six weeks, or even for four or five months. The heart may show signs of dilatation. Examination of the pulse in many cases has shown that during the twenty-four hours it alters considerably in both degree of irregularity and in frequency. The changes occur at short intervals (half an hour or so) and sometimes appear to come on in definite attacks. On the whole the irregularity is most marked at night, and usually persists during the night after the pulse has become quite regular during the day. As a rule, but not invariably, the pulse diminishes in frequency when it becomes irregular; it may be rapid all the time. The irregularity coming on in the acute stage is a primary affection, but is greatly affected by strain (vomiting or struggling). The irregularity does not conform to any type; every variety and degree, with sometimes intermittence, occur together. As a rule the patient appears quite well and suffers neither inconvenience nor distress on account of the heart failure.

Danger can only be rendered evident by a thorough and systematic examination of the heart and pulse in every case of diphtheria, however mild it may appear. It can best be guarded against by keeping the patient in bed, or at least free from strain, as long as there are any signs of heart failure. Primary cardiac failure during the acute stage can only be prevented by the use of efficient doses of antitoxin at as early a period as possible.

Clark, L. P., and Prout, T. P.: A Case of Infantile Cerebral Palsy, with Autopsy Findings. (*The Journal of the American Medical Association.* Vol. xxxviii., No. 17.)

The patient was healthy before the onset of the cerebral palsy at two years of age. Epileptiform crises appeared at six years, and death was due to the status equivalent at twenty-nine. Mental impairment had not been marked; speech and the special senses were normal. At the autopsy the brain without pons and medulla weighed 586 grammes—the left side 85 grammes and

the right 501 grammes. The convolutions of the left hemisphere were very rudimentary. The cerebral lesions were probably produced by venous thrombosis of surface veins with secondary hemorrhage resulting. This in turn caused more or less complete but asymmetrical atrophy of the entire left hemisphere, producing microgyria, cystic degeneration and pseudo-porencephaly. Secondarily, the cerebral lesion caused mal-development of the whole right cerebellar lobe and extreme atrophy of the left thalamus and inferior olive. The cranial fossæ at the base showed arrested development corresponding in location and extent with the brain masses which each contained. Their participation was remarkable for an extra-uterine lesion.

Bacon, C. S.: The Importance of Rickets in Girls from an Obstetrical Standpoint. (*The Clinical Review.* Vol. xvi., No. 1.)

Rickets in infants is of great obstetrical interest. If the percentage of contracted rachitic pelvis in adults is a criterion, from 3 per cent. to 7 per cent. of female infants suffer from rachitis to a sufficient degree to affect the pelvic diameters. Early diagnosis is of great importance in these cases because it may be possible to arrest the disease before the osseous deformity in question has developed. Passing by certain equivocal signs, the discovery of beaded ribs gives the first assurance that the disease is affecting the bones. The indications are readily apparent, viz., to treat the underlying dyscrasia and prevent the pelvic deformity. The former is filled by appropriate diet, including some form of fat, sodium chlorid, etc. The latter, however, which would appear to come under the head of orthopedic treatment, has been largely ignored. Recumbency, indicated in theory, is of course impracticable. It is possible that an apparatus might be devised to take the weight of the head and trunk from the sacrum. Careful measurements and radiography might inform us as to the progress or arrest of the disease.

Rassieur, Louis, and Fisch, Carl: Report of a Case of Hydrocephalus (Possibly Acquired), with Post-mortem. (*St. Louis Medical Review.* No. 1070.)

The patient, a boy of nine years, had been well, apparently, until about three months before consultation, when meningeal

irritation became evident (neural pain, retraction of head and a cephalic cry. The next symptom noted was blindness which was absolute at the end of five weeks, and was found to depend upon atrophy of the optic nerve. The principal symptoms at the first examination were of endocranial origin consisting of a hydrocephalic conformation of the skull, subnormal intelligence, and partial motor paralysis of both arms and legs. There were intermittent attacks of pain, vertigo and cerebellar ataxia. The cerebrospinal fluid, obtained by lumbar puncture, was apparently free from tubercle bacilli.

On the second day of the observation period the temperature was but 87° , and remained near that figure for four days, when it began to rise, and was supernormal until the child's death which took place eleven days after admission.

Autopsy revealed no evidences of inflammatory changes within the cranium. The optic nerves, tracts and chiasm were in a state of advanced degeneration, but, generally speaking, the entire condition was such as would result from acute transudation and the resulting compression. The process may have begun in the spine, as any other hypothesis could not account for the facts.

Rouslacroix, A.: On the Transmission of Agglutinin from the Mother to the Fetus During Typhoid Fever. (*La Presse Médicale.* No. 27. 1902.)

In the second week of an attack of typhoid fever a woman gave birth to twins, who died on the fifth and sixth days respectively. The mother also died. A positive Widal reaction had been obtained with her blood fifteen hours before the birth of the children. Blood from the umbilical vein directly, and also from both infants, gave a negative reaction, and so did the amniotic fluid. A second test with the infants' blood four days after birth was also negative.

Another case was that of a primipara whose child was born at the end of the second week of a typhoid attack, and died in twenty-four hours of intestinal occlusion. The mother recovered. Her blood was positive to the Widal test, but the infant's was negative. Blood from the umbilical vein gave a positive reaction in a dilution of 1 to 10 in one and a half hours; it was negative in a dilution of 1 to 20.

The child may be born prematurely without any manifestation of typhoid infection or toxemia. The placenta exercises

an arresting action upon the toxins and antitoxins of the mother, but that agglutinin does traverse it has been proven. In the reported cases the duration of the placental impregnation had not been sufficiently long to permit the passage of agglutinin.

Hutchison, Robert : Some of the Medical Aspects of Adenoid Vegetations as Exhibited in Infancy and Childhood. (*The Clinical Journal.* No. 483.)

It is not generally known to the profession at large that infants have adenoids. Their presence in very early life indicates that they may have developed in utero. In one group of these cases the predominant symptom will be obstructed nasal respiration, attacks of nose bleed and bronchitis may coexist. In a second class of cases the most striking symptom is a cough, which may simulate pertussis. Other phenomena more or less in evidence comprise snoring, stridulous respiration, dysphagia and profuse sweating of the head. To sum up, then, there are three types of symptoms, viz.: nasal, laryngeal and pharyngeal or esophageal.

Adenoids in infancy have to be differentiated from congenital syphilis and congenital stridor of the larynx. Syphilis is imitated by the nasal obstruction, snuffling and purulent discharge of adenoids. In fact, the diagnosis could hardly be made without the aid of the family history and cutaneous lesions of syphilis. Congenital stridor appears to be a pure neurosis, and a digital exploration of the pharynx should suffice for differentiation. In regard to the treatment of these cases the rule is that the younger the child the more the likelihood of recurrence.

Hutinel; Non-Suppurating Meningitis. (*Rev. Mens. des Mal. de l'Enf.*, Vol. xx., No. 4.)

The meninges, like any other organ, may react to an irritant in varying degree, from a passing congestion to suppuration. The dividing lines established between meningism, serous meningitis with bacteria and that without bacteria, are purely theoretical. It is a mistake not to admit that there may be transitory and curable meningeal irritations.

Serous meningitis almost always occurs in the course of grave infections, and has no pathognomonic symptom. The onset may be sudden, or insidious and unrecognized. Vomiting is more constant than constipation. All the symptoms are less marked

than in suppurative meningitis. Eye troubles are almost always present, and the ophthalmoscope shows congestion of the papilla and retina. The course may be very irregular, with exacerbations; it may last a few days or more than a month. The condition may be cured completely, or be followed by chronic hydrocephalus or cerebral sclerosis. Clinically it varies in form according to the infectious disease which it complicates: grippe, pneumonia, typhoid, etc. The subacute cases must be differentiated from thrombosis of the cerebral veins, hand sinuses, cerebral abscess, tumor or tubercle, encephalitis and sclerosis. The most efficacious form of treatment is the warm bath at 38°-40° C., repeated four or more times per day. Lumbar puncture is often indispensable, and cold applications to the head and laxatives are useful. Bromid of potassium and chloral are also indicated.

Spratling, W. P.: Epilepsy, Its Etiology, Pathology and Treatment Briefly Considered. (*The Journal of the American Medical Association.* Vol. xxxviii., No. 18.)

In the United States one person in every 500 suffers from epilepsy. Symptomatic classification includes four types: grand mal, petit mal, psychic and Jacksonian epilepsy. A more scientific classification is based on causes, the simplest way being to make three age periods: up to the age of twenty, during which time most cases develop; during adult life; after the beginning of senility. During the first period the cases are grouped as primary or developmental and accidental. Similar and dissimilar heredity must be considered. In a study of 1,110 cases during the past six years, 16 per cent. were due to similar heredity; alcoholism in the ancestors caused it in 16 per cent. of the males and 12 per cent. of the females. Insanity in the ancestors was established in 7 per cent. of the males and 10 per cent. of the females. Tuberculosis existed in the family in 15 per cent. of the males and 12 per cent. of the females. It seems that alcoholism in the father is more likely to produce epilepsy in the child than when the mother is alcoholic, and insanity in the mother is more apt to cause it than insanity in the father. Heredity of some sort was the cause of 56 per cent. of the entire number of cases studied. Accidental forms include the large number of cerebral palsies, amounting to 11 per cent. of the studied cases, and also those due to trauma, to accidents incidental to birth, to the poi-

ons of specific diseases, to the toxemias of intestinal origin, and to certain chemical poisons.

After twenty years of age epilepsy is probably never primary or developmental, but is due to syphilis, traumatism, alcohol, ptomaine, or, rarely, chemical poison.

The pathology is still wrapped in considerable obscurity.

Epilepsy tends to shorten life. The status epilepticus may develop at any time, and is the cause of death in 25 per cent. of all fatal cases. Epileptics are also especially prone to diseases of the heart and lungs. Under proper treatment 8 to 10 per cent. may be made to recover. The most discouraging symptom is some form of mental impairment, such as: feeble-mindedness, imbecility, idiocy, and various forms of insanity. Some form of mental impairment may be looked for in 90 per cent. of all cases in which the disease has existed some years. In Jacksonian epilepsy, where the convulsions are mostly confined to the motor portions of the brain, the patient may live to old age and have a fairly good mind to the end.

A close study of the auras is important, for they probably indicate the seat of the irritative lesion that produces the convolution, or the seat in the brain of the primary discharge of nerve force. The epigastric aura is the most common of all.

A rise of temperature followed 55 per cent. of all attacks in 1,000 cases, and the thermometer may be of value in differentiating hysteria from epilepsy.

Treatment must be medical, surgical, dietetic and moral. Camphor, opium and its derivatives, valerian and belladonna are the best antispasmodics to use. Bromipin, brominized oil of sesamum, is a good substitute for the bromids. The best results with the bromid salts will be obtained by withdrawing all sodium chlorid from the patient's food and salting with the bromid of sodium. The author's experience does not lead him to take a hopeful view of the benefits of surgical intervention.

Hawthorne, C. O.: Note on a Case of Arthritis Accompanying Ophthalmia Neonatorum. (*The Lancet.* No. 4109.)

That newborn infants may develop gonorrhreal rheumatism as a complication of purulent ophthalmia is now a well-attested fact. In a case seen by the writer the affection of the eyes began two days after birth and continued in a severe form for three

weeks. When the baby was a fortnight old its right shoulder joint became swollen, and the right wrist was affected later. These lesions subsided of themselves, and in the meantime the conjunctival discharge had also become thinner and scantier. Nevertheless when the baby was six weeks old the left elbow became the seat of arthritis. The limb was fixed, and the patient made a rapid and complete recovery.

Thomson, J.: Infantilism. (*The Scottish Medical and Surgical Journal.* Vol. x., No. 5.)

Meige, in *Gaz. des Hop.*, 1902, has a valuable paper on this subject. He finds that infantilism is of two varieties, myxedematous and of Lorain's type. In the former defective action of the thyroid is invariable, and may be congenital or acquired. The thyroid lesion sets up a specific auto intoxication, and affects all the organs or tissues with an arrest of development. The effect on the skeleton is to cause a delayed union of the epiphyses and diaphyses of the long bones. The arrest of growth in myxedematous infantilism is therefore due to an arrest of ossification. There is also dystrophy of the genital organs.

In Lorain's type the morbid process is a defective arterial development (anangioplasia), which causes insufficient nourishment of the tissues. The epiphyses are found to be normally united. Growth is defective, but development goes on. The stunted growth is not due to defective ossification, but to its premature occurrence.

Crandall, F. M.: Uranalysis in Children. (*International Medical Magazine.* Vol. xi., No. 5.)

The specific gravity of the urine is low in infancy, being 1003 to 1007 on the fourth or fifth day, rarely over 1010 during the first six months and 1014 in the fourth year. It is commonly 1015 until the fifteenth year. The reaction during infancy and childhood is usually faintly acid, but may be neutral or faintly alkaline without being abnormal. The amount of urea is proportionately large, and so is the amount of urine passed. During the first few weeks of life the amount of uric acid is larger than at any subsequent time. The ratio of uric acid to urea steadily decreases during infancy, but

is large throughout childhood. A decided or prolonged departure from the normal ratio is always an evidence of disordered nutrition. Lithuria is a symptom of many conditions, the most common being indigestion and rheumatism. During the first few days of life albumin is of little significance, but after the first week its occurrence is usually of the same significance as in later life. The same applies to hyaline casts. Sugar may sometimes be found in the urine of healthy children during the first three or four weeks. In infants two or three months old its appearance is usually accompanied by symptoms of impaired digestion, and it is without doubt milk sugar. Diabetes may occur very early in life, however. Blood in the urine may be due to melena, purpura, scurvy, new growths of the kidney or any of the causes which may account for its appearance in later life. Pus may be due to acute pyelitis or pyonephrosis. Chronic pyuria is commonly due to a calculus or to tuberculosis of the kidney.

Gossage, A. K.: The Etiology of Infantile Paralysis. (*The American Journal of the Medical Sciences.* Vol. cxxiii., No. 5.)

Two cases occurring in a brother and sister, aged seven and five years respectively illustrate the epidemic form of the disease. The boy was attacked seven days after the girl.

Clinical records are strongly in favor of several definite diseases being included under the term anterior poliomyelitis: That class where the paralysis comes on suddenly without previous ill-health; that in which general symptoms (fever, vomiting, pain in the back) precede the paralysis; the epidemic class; and the adult class. The three latter may possibly be the same disease which may occur sporadically or epidemically. A purely vascular lesion as the cause of the disease is improbable. The one definite fact obtainable from the postmortem examination of patients who have suffered from anterior poliomyelitis is that in all recent cases there are signs of a local inflammation in the ventral horns. This local inflammation is probably caused by a specific microorganism which has not yet been isolated. The reputed association with the acute specific fevers would be better explained by supposing that there is a weakened resistance to the attack of other organisms left after these complaints.

SURGERY.

Rodman, William L.: Herniotomy (Girl Twelve Years Old.) (*The Medical Bulletin*. May, 1902.)

The difficulty in diagnosis between inguinal and femoral hernia in the female may be very great. In the present case the hernial protrusion can be moved to the inner side of the pubic spine and cannot be moved to the outer side. It also lies above a line which runs from the iliac to the pubic spine and not below this line. Hence it is clearly an inguinal hernia.

The herniotomy was a typical Bassini radical operation. In the female the aponeurosis of the external oblique can be sutured as tightly as possible as there is no cord to be respected. After closure of the external wound, a plaster of Paris dressing was applied, without drainage.

Cavaillon: Fibroma of the Uterus in a Child of Thirteen Years. (*Gazette des Maladies Infantiles*. No. 20. May 15, 1902.)

The clinical history of the child aged thirteen years is negative up to January, 1901. The family history is negative. Menstrues occurred at the age of twelve years. For eight months there was menorrhagia at menstrual periods. When first seen, in January, 1901, there was extreme anemia, edema, digestive disturbances, palpitation, etc.

Digital examination revealed a tumor as large as two fists. For three months there was cessation of the menorrhagia. A second examination showed the tumor to be much increased in size.

It was first thought that there might be retention of blood, but catheterization of the cervix proved negative. Pregnancy was thought of but the idea was rejected for numerous reasons. In March a laparotomy revealed an enormously enlarged uterus, whose surface was traversed by distended veins.

After puncture of the organ a hysterectomy was performed. The tumor weighed 3 kilogs. Microscopic examination proved it to be a fibromyoma of benign character.

The patient did well. This case is presented, firstly because of the difficulty encountered in making a diagnosis and also because fibroids are of rare occurrence before puberty.

Smith, E. Noble: Some Practical Points in the Treatment of Congenital Torticollis. (*The Lancet.* No. 4113.)

Division of the contracted sternocleidomastoid is usually required to cure this deformity. It is sometimes necessary to divide a portion of the trapezius and deep cervical fascia. A retentive apparatus is seldom required at any period of treatment. The muscles may be severed by open incision or subcutaneously. The former is to be preferred as a rule, while the latter may be practised if the sternal end of the muscle is to be divided. A vertical incision of the skin does better than one which is transverse, for cosmetic reasons as well as for convenience.

The incision should be about one and three-quarter inches in length from the level of the clavicle upwards and should expose the edge of the clavicular portion of the sternomastoid. The muscle can be carefully cut through from without downwards. Oozing of blood having ceased the wound must be stitched up and treated in the ordinary manner, a large pad of gauze tissue or other soft dressing being applied to effect gentle pressure. The patient's head should then be placed in a perfectly straight position or even a little bent towards the side opposite to the affected muscle and fixed in position by sandbags placed on each side of the head, the patient lying supine. No other method of retention is necessary unless the child should be very unmanageable. The divided muscle usually reunites rapidly and about from a week to ten days in bed in the one position suffices usually to allow a fairly firm union to take place. After this it is generally permissible for the patient to sit up in bed and in the course of a few days to get up and move about cautiously. At the end of three weeks the patient should have recovered from the operation.

HYGIENE AND THERAPEUTICS.**Zanger, Theodore: On the Treatment of Incipient Bronchopneumonia in Infants.** (*The Lancet.* No. 4113.)

The frequency with which bronchopneumonia supervenes as a complication of measles and whooping cough facilitates its early recognition and enables us to apply some form of abortive treatment, which must of course be of such nature that the course of the primary disease is not unfavorably influenced.

The author has obtained superior results from hydrotherapy. At the very first onset of pneumonic symptoms he gives the patient a bath which is maintained at 86° F. for two minutes, and then slowly cooled to 76° F., the entire bath lasting 4 or 5 minutes. The skin is rubbed at the same time with the hand or a sponge. If the pneumonic symptoms continue, the baths should be repeated at intervals of from eight to twenty-four hours. As a collateral measure to be used in the intervals the crosspack is recommended. It is applied as follows:

A linen bandage about one and a half inches broad for infants and five inches for adults, and from two to three yards long, is placed in cold water (from 54° to 66°), is well wrung out, and is applied to the chest thus—(1) beginning under the right axilla, passing over the left clavicle and round the chest back to the right axilla; (2) from here round the chest horizontally; (3) from the right axilla to the left and over the back and the left clavicle to the front (or left axilla). This bandage is covered in the same way with a thick single, or thin double, flannel bandage perhaps half an inch broader. This "pack" is applied at night and left till the morning; on removing it the chest must be well rubbed with a cold, wet towel and then rubbed dry.

Five cases with recovery are cited under hydriatic measure, conjoined with hydrochlorate of quinin or euquimin.

Cutler, Elbridge G.: An Abstract of Some of the Prevailing Opinions on the Periods of Incubation, Observation and Isolation of Some of the Infectious Diseases. (*Boston Medical and Surgical Journal.* Vol. cxlvi., No. 22.)

The usual incubation periods are as follows: Typhoid, 12 to 14 days; mumps, 3 weeks; scarlet fever, 2 or 3 days; whooping-cough, 4 to 10 days; measles, 11 or 12 days; chicken-pox, 14 days; rötheln, 18 days; small-pox, 11 or 12 days; diphtheria, 2 days; influenza, 2 or 3 days. The observation periods requisite to control the possibility of infection after exposure are as follows: Typhoid, 4 weeks; mumps, 25 days; scarlet fever, 10 days; whooping-cough, 21 days; measles, 16 days; chicken-pox, 20 days; rötheln, 23 days; small-pox, 3 weeks; diphtheria, 12 days, and influenzaz 6 or 7 days. The isolation periods to be maintained after subsidence of symptoms are as follows: Typhoid, 4 weeks; mumps, 28 days; scarlet fever, not given by days, but after all subsidence of complications; whooping-cough, until cessation of

whoop; measles, until end of desquamative and catarrhal sequelæ; chicken-pox, until detachment of all scabs; rötheln; 2 or 3 weeks; small-pox, until detachment of all scabs; diphtheria, until 2 negative cultures can be obtained; influenza, until end of all catarrhal sequelæ.

All the foregoing figures are merely approximations or averages, subject to extremes of fluctuation in individual cases. In regard to isolation periods it is understood that the premises must have been disinfected, fomites destroyed, etc.

Freeman, E. Carrick: Three Cases of Cerebrospinal Fever Treated with Antipyrin. (*The British Medical Journal.* No. 2160.)

One of the cases occurred in a boy thirteen year old, and was very pronounced in type. The patient was half comatose, and gave the hydrocephalic cry in a marked fashion. The other customary symptoms were present to a more moderate degree. Antipyrin given in five grain doses three times daily dispelled the fever and all dolorous symptoms; after which the drug was discontinued. The patient survived the attack, his recovery being complete save for strabismus. Another case in a boy of fifteen was of equal severity besides being complicated by sepsis (multiple suppurative lesions). He also sustained a relapse of the meningeal attack. Recovery ensued without sequelæ. Antipyrin was given during both the primary attack and relapse. These 2 cases were part of a small epidemic of fatal character.

McCrae, John: The Bacteriology of the Skin and of the Glycerinated Lymphs. (*The Montreal Medical Journal.* Vol. xxxi., No. 4.)

Specimens of glycerinated lymph of three different makes were recently found to be sterile. Points prepared by the same firms were sterile in but one instance, the others containing a single bacillus such as is ordinarily present in the air, hence relatively harmless.

In regard to the possibility of auto-infection from buried germs during the act of vaccination, it is theoretically demanded that the cuticle should be well scraped so that the sweatpores shall be laid open. If drainage is then secured such germs should be harmless; but if the vicious process of scabbing is encouraged, auto-infection should be directly favored, although only mild local sepsis would occur in the vast majority of cases.

Hansell, Howard F.: The Use of a Solution of Permanganate of Potassium in the Treatment of Purulent Ophthalmia. (*Therapeutic Gazette.* Vol. xxvi., No. 5.)

The drug was used for a period of two years, and with the best of results. In recent cases with profuse discharge of thick pus the eye should be irrigated for five minutes with a solution of 1 to 600. These irrigations should be repeated every twenty minutes during the first twenty-four hours after which this frequency may be reduced, while at the same time the strength of the solution may be brought down gradually to 1:2000 until all traces of pus disappear from the conjunctival sac. The irrigation is effected by a rubber nozzle attached to a rubber douche-bag.

Brownlee, J.: The Antitoxin Treatment of Diphtheria in the City of Glasgow Fever Hospital, Belvidere, During Six and a Half Years. (*The Glasgow Medical Journal.* Vol. Ivii., No. 4.)

At the age of one year the death-rate shows an improvement of 34 per cent. After the introduction of antitoxin, and between the ages of five and ten years an improvement of 75 per cent. The laryngeal cases under one year of age still show a high fatality, which can only be improved by bringing them under treatment at a much earlier period of the disease. The operative cases show an increase of 50 per cent. of recoveries at the age of one year, and of 80 per cent. at the ages of five to ten. The mortality of tracheotomy is only high during the first two years of life, according to these statistics.

Early diagnosis of diphtheria is necessary, and a small dose of antitoxin should be administered at once if there be reasonable suspicion that the case is diphtheria. If the disease is at all advanced when first seen, the case should be at once removed to hospital or receive a sufficient curative dose of the remedy. The city or the parochial authorities should bear the expense in the case of poor patients treated at home.

Derby, Richard H.: Contagious Ophthalmia in Industrial, Residential and Public Schools, and in Asylums and Hospitals. (*Medical Record.* No. 1652.)

The percentage of contagious ophthalmia in such institutions as the New York Juvenile Asylum, Five Points House of Industry, House of Refuge, etc., has been reduced many fold since

1886, at which period an intelligent prophylaxis was first introduced. At the present time periodical examinations, isolation of infected cases and the use of private towels and the like are sufficient to keep the disease well in check. Much, however, yet remains to be done, for most of these inmates of institutions attend the public schools, and a number of sufferers from latent trachoma are enabled to diffuse the disease among the healthy. Hence prophylaxis which has hitherto prevailed in these institutions must be extended to the public schools, and in time children with contagious ophthalmia must not be admitted to general asylums at all but confined and treated in some special place.

Rambaud, G. G.: The Antirabic Vaccinations at the New York Pasteur Institute During 1900 and 1901. (*Medical News.* Vol. Ixxx., No. 14.)

Of 241 persons treated, eighty-one were children under sixteen years of age. One death followed the treatment, in a child of seven years who was bitten on the face by a dog that was killed a few hours later. The wounds bled freely and were cauterized with nitric acid within fifteen minutes. The child was treated for twenty-three days, but developed symptoms of hydrophobia two and a half months later and died in three days. Two cases (aged seven and eight years) who died within fifteen days after the treatment are not included in the statistics.

The dog that has bitten a person should not be killed at once, but should be kept under observation in confinement for at least one week in order to establish the diagnosis positively. As soon as the animal dies, its head and neck should be cut off and sent to the nearest laboratory for the crucial tests. Should this be impossible, the medulla and brain should be removed and pieces of each put into two clean bottles, one containing 95 per cent. alcohol and the other glycerin. The material will then be in good condition for inoculation after several days. The diagnosis should be made as quickly as possible and the treatment must always be given early. Cauterization of the patient's wounds should never be relied upon. While immediate cauterization with the cautery or with fuming nitric acid will often destroy all the virus inoculated, or at least tend to increase the length of the incubation period, it is much better to treat the wound antiseptically like any other infected wound unless the cautery can be applied within one hour. Nitrate of silver is worthless in these cases.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

SEPTEMBER, 1902.

[No. 9.

Original Communications.

REPORT OF A CASE OF EXTREME ENLARGEMENT OF THE SPLEEN WITH ANEMIA.*

BY SAMUEL MCC. HAMILL, M.D.,

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The patient whose case I report first came under my care in March, 1897, at the age of six years. A few weeks later I presented him to the Philadelphia Pediatric Society with the following report, revised only in so far as it relates to the family history. At the time of his death I found out what I had not discovered before, that he was the illegitimate son of a woman whom I had been led to believe was his sister. No information regarding the health and habits of the father could be obtained. The mother is living and in good health, without any history or manifestations of syphilis. No member of the mother's family has had any disease similar to the patient's. All of his uncles and aunts (four in number) are living and well. His grandmother died of pneumonia in February, 1900. His grandfather is living and well. The patient has never had any of the early manifestations of congenital syphilis and gives no history of malaria. His only illness has been an attack of epigastric pain of several weeks' duration, which occurred about two years ago. His abdomen was not examined then or at any previous time. For several years he has had frequent and sometimes profuse epistaxis. His skin has had a dusky hue since birth; it has never been pigmented.

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

Eight or nine weeks prior to coming under my notice he developed constant epigastric pain, which increased shortly after eating. Following this by one week he began to have constant severe pain in the lumbar region. A week later he had five hemorrhages from the stomach in the course of a single day; about a cupful of dark clotted blood was vomited, and on the same day he passed some blood from the lower bowel. He was pale and very weak following this and was confined to bed for a week. Immediately following the hemorrhages the pain in the back ceased. The epigastric pain continued for some time and he has vomited once since this attack, but there was no blood in the vomitus. He has gradually regained his strength, appetite and color, and within the past two weeks the pain has ceased entirely. He did not seem to lose flesh in the attack. His bowels are regular and have been since birth. He has never vomited blood before, nor passed blood in his stools, nor from his bladder. No urinary symptoms of any kind have ever been noted. His body temperature has been slightly elevated in the few times he has been seen, ranging from 99° F. to 100½° F., and his grandmother thinks he has mild fever quite often. He has always been a very active boy, engaging in all the violent sports without any apparent discomfort or disadvantage to himself.

THE PHYSICAL EXAMINATION shows a fairly well-developed boy, somewhat under size, anemic, and the skin having a rather dusky hue. The most striking thing about his appearance is the marked prominence of his abdomen, especially in its left half. This condition his grandmother thinks has existed practically since birth, at least she has long been conscious of it and cannot fix upon the time of its beginning. The superficial veins of the thorax and abdomen are unduly prominent. Palpation of the abdomen shows a huge, firm, smooth mass, occupying the entire left upper quadrant, extending some distance below the transverse umbilical line and slightly to the right of the median line in the umbilical region. The mass has well-defined edges and a distinct notch in the right border. The percussion note is dull over the area described—the dullness extending to the vertebral column posteriorly and superiorly to the seventh rib in the anterior, and to the eighth rib in the posterior axillary line. The mass moves obliquely downward on inspiration and can be moved about quite readily by the hand.

Palpation of the right half of the abdomen shows the liver to

extend slightly beyond the margin of the ribs. Its upper border corresponds to the fourth rib in the midclavicular line. The remainder of the abdomen is rather tense. The intestines are evidently pushed over into the lower right abdomen, where there is decided tympany.

The lungs are normal. The apex beat of the heart is in the fourth space just outside the midclavicular line. There is a soft systolic murmur heard at the apex over the body of the heart, and in the pulmonary area, and there is a venous hum in the neck. The lymph nodes at the angle of the jaw, the post-cervical, the axillary and the inguinal lymph nodes are slightly enlarged; the epitrochlear and suboccipital nodes cannot be felt. The head is well-shaped; the legs are straight. There are no deformities of the thorax save a slight costochondral thickening. The examination of the urine for sugar, albumin, casts and tubercle bacilli was negative.

Dr. A. E. Taylor, Associate in Clinical Medicine in the Pepper Laboratory, kindly made an examination of the blood for me on the 24th of March, 1897, with the following result: H., 40 per cent.; erythrocytes, 3,365,000; leucocytes, 5,200; differential count, polynuclear forms, 50.4 per cent.; mononuclears, 7 per cent.; lymphocytes, 42 per cent.; eosinophiles, 6 per cent. The only change shown in a second examination, made on the 13th of April, was a slight increase in the red corpuscles and an advance of 10 per cent. in the hemoglobin.

After the above notes were recorded, I did not see the patient again until the 27th of October, 1899, an interval of nineteen months. During this time he had been, and at this date was entirely, well, and only returned because of partial deafness, which had dated from the 4th of July immediately preceding. A physical examination was made, however, and the following notes recorded: The general appearance is much the same as at the previous examination; he has grown rapidly and seems normal in height for a boy of nine years.

ABDOMINAL EXAMINATION: The abdomen is very prominent, especially in its left half; the lateral diameter is greatly increased, making the costal angle very obtuse, the slant on the left being nearly parallel to the plane of the chest. There is marked fullness of the superficial veins of the chest and abdomen. In the left upper quadrant and extending into the lower left quadrant beyond the crest of the ilium and anteriorly one and one-half inches be-

yond the median line, there is the same firm, smooth mass with the same well-defined edges, evidently an enlarged spleen. By pressure on this mass from right to left, the right border can be pushed to three inches to the left of the median line. Pressure from above downward causes the lower border to descend several inches below the point described. By applying pressure from below upward, this same border can be elevated above the transverse umbilical line. The upper border of dullness in the position first described corresponded in the anterior axillary line to the seventh rib, and in the posterior axillary to the eighth rib. This boundary changes in correspondence to the changes in position described. The area of liver dullness is not increased, and its edges do not extend beyond the costal margin; the rest of the abdomen is tympanitic; there is no tenderness.

Heart: The apex beat is visible and palpable in the fourth space just within the midclavicular line. The area of dullness begins above at the second rib, on the right at the left edge of the sternum and on the left in the midclavicular line. There is a soft systolic murmur best heard at the apex, heard faintly at the fourth costal cartilage and in the pulmonary area; it is not transmitted to the axilla. The lung examination is negative.

A complete blood examination was made at this time by Dr. C. Y. White, but unfortunately the slip containing the exact percentages was mislaid; it showed, however, a higher percentage of H. than before; the red cells were increased, and the whites decreased. The differential count showed a smaller number of lymphocytes, and a greater number of polymorphonuclears.

Practically the only change noted since the last examination was some increase in the mobility of the spleen.

On the 15th of January, 1900, about three months later, he consulted me on account of a cough which he had had for four weeks. The following notes were recorded. Cough especially severe at night; it is loose, but unaccompanied by expectoration. He has quite marked dyspnea, which is increased when he lies on his back or on his right side.

PHYSICAL EXAMINATION: The abdomen is more distended; the splenic mass is the same in size, position and mobility. There is some dullness in the flanks and a suggestion of fluctuation, due possibly to a slight effusion.

Lungs: The examination shows bilateral dullness posteriorly, which is probably due to the enlarged spleen on the left,

and the pushed up liver on the right. There are some moist râles over the lower chest, posteriorly, especially on the right side. There is no bronchial breathing and the vocal resonance and the tactile fremitus are normal. There is some pigmentation of the skin over the forehead toward the temporal regions. The bowels are regular. The amount of urine voided is less than normal.

He continued restless and uncomfortable from this date. On the evening of January 20th he had a profuse hemorrhage from his stomach; during the course of the night there was some recurrence of the bleeding, and altogether he was thought to have vomited nearly a quart of blood. During the following day he had several tarry stools, and his urine was decreased in quantity and very dark in color. An examination of the latter on the 23d showed a dark, cloudy urine, with a sp. gr. of 1.010: it contained albumin one-half by bulk; microscopically, much blood, hyaline, pale and dark granular casts. Immediately following this hemorrhage anemia was very marked. The abdominal ascites which had been noted rapidly increased until, on the 4th of February, the breathing was so labored that aspiration became necessary; after two quarts of clear, serous fluid had been removed the aspirating needle was withdrawn. The point of puncture failed to close, and for the next thirty-six hours serum flowed so freely that it was difficult to keep the bedding protected. The oozing finally ceased; the abdomen remained much distended for one week. After this the effusion lessened rapidly, and at the end of three weeks had entirely disappeared. During this attack the temperature was persistently elevated, and very irregular; some days not going above 101°, and on others running as high as 104° F. The cough and pulmonary signs, which were evidently due to pressure, disappeared as the effusion lessened.

The urine cleared up gradually; his color improved, and his strength increased; by the middle of March he was able to sit up. In the latter part of the month, just as he was beginning to go about, he developed a very severe attack of follicular tonsillitis. He made a good recovery from this. A few weeks later he had a sharp attack of measles.

In the early part of July he called at my office; at this time he was looking and feeling well. He was able to engage in active games without much dyspnea or fatigue. His anemia was much less marked. His cough had disappeared. His bowels and kidneys were acting normally. His urine was normal, and he had no

fever. His abdomen contained no fluid; it was otherwise as it had been.

On the 5th day of January, 1901, he consulted me on account of an injury to his knee. He was looking better than I had ever seen him, and was feeling as well as he had ever done. His urine, barring a sp. gr. of 1,026, was normal. There was no change in the abdominal condition. He was referred to Dr. C. Y. White for a blood examination on the 16th of January, 1901, which resulted as follows: H., 58 per cent.; red cells, 4,400,000; white cells, 3,680; color index, .66. The proportion of white to red cells, 1 to 1.195. The red cells show nothing abnormal.

Differential count of leucocytes no. 3,680.

Polymorphonuclears	82 per cent.....	3,017.60	Deg.
Mononuclears	1 "	36.80	"
Transitions	5 "	191.36	"
Lymphocytes	8.6 "	309.12	"
Eosinophiles	3.4 "	128.02	"

The degenerations were many, especially of the polymorphonuclear cells.

A large number of stained specimens of this blood had been examined from time to time by Dr. White, and in submitting this report he adds that "The other specimens which I have examined show about the same blood picture as that here depicted. There have been no marked cellular changes in any of them." This was the last complete blood examination made.

There is a striking difference between the percentages of polymorphonuclears, and lymphocytes in the examinations made by Dr. Taylor in 1897 and those made by Dr. White in 1900 and 1901; otherwise they are much the same.

In the latter part of January he had a severe cold, with fever-coryza, sore throat, etc.; he was bedfast for two days and indoors for one week. He had entirely recovered from this and was in good condition when, on the 23d of February, while at play he had a hemorrhage from his stomach; he was able to walk home. An hour later, after having been put to bed, he complained of nausea and general discomfort, after which he began to vomit blood. The first part was not collected, but a cuspidor was secured and the vomiting continued long enough to fill the cuspidor, which held about a quart. He was extremely collapsed im-

mediately following this, but by the end of two hours he had revived and was feeling comfortable. He rested quietly until two o'clock of the following morning, when he wakened and immediately began to vomit; the quantity of blood lost was thought to have been quite as much as on the previous day. His condition was such following this hemorrhage that he had to be actively stimulated before consciousness was restored. When seen at ten o'clock on the following morning he had a small, irregular pulse, beating 120 to the minute. His heart sounds were weak and muffled. His pallor was extreme; he was yawning and sighing persistently.

His abdomen was not palpated at this time, but it looked much smaller than it had been, a fact which his attendants had noted. He had three tarry stools on the second day after this attack. His condition improved somewhat until, on the morning of the 27th, he expressed himself as feeling much better; he talked a great deal and asked to have the paper read to him. About ten o'clock, while in the act of drinking a glass of milk, he fell back pale and unconscious, and vomited a mouthful of blood. He had several general convulsions, developed Cheyne-Stokes' breathing, and died in three-quarters of an hour without regaining consciousness. His abdomen, examined one-half hour before death, was flat, and the spleen was greatly reduced in size, extending only about three inches beyond the costal margin.

THE AUTOPSY, restricted to the abdomen by the request of the mother, was made six hours after death. Emaciation was extreme; the skin was of a lemon hue; postmortem rigidity was moderate; the body had retained an unusual degree of heat. An incision was made from about the second costal cartilage to the pubic bone. The skin and subcutaneous tissues were very tough, and there was an unusual deposit of bright yellow subcutaneous fat. The parietal peritoneum was much thickened, and had the appearance of an aponeurosis. There was evident to the view only the coils of the small intestines and a small portion of the spleen, showing just below the margin of the ribs in the upper left quadrant. The omentum was exceedingly fatty, the fat having the same peculiar color as that already described. The intestines had a pearly appearance, their peritoneal covering being greatly thickened. The small intestines were not adherent except in the region of the spleen. The appearance of the mesentery was most striking. It was infiltrated throughout with a dense sheet of light yellow fat

which was about three-sixteenths of an inch in thickness. There was some enlargement of the mesenteric lymph nodes ranging in size from a pea to a lima bean. They were embedded in the fat. The stomach was distended and full of liquid. On removing the intestines the mesentery cut very much, as did the abdominal wall; it was richly supplied with blood vessels. The transverse colon was very adherent to the spleen, the kidneys, the upper portion of the small intestine and the liver. The stomach contained about a pint of liquid and clotted blood. There was a great deal of mucus adherent to its walls. When this was washed away the mucous membrane was found to be pale; there were no areas of congestion; all of the vessels were empty; there was no evidence of ulceration or thickening, and there was no fullness or varicosity of the esophageal veins. The stomach wall was thickened, due apparently to thickening of the serous coat. The walls of the intestines were very much thickened, due again to thickening of the serous coat. In the rectum and sigmoid flexures, there were hard fecal masses; in the large and small intestines there was a considerable quantity of blackish rather pasty fecal matter, evidently altered blood. The spleen was adherent especially in its attachment to the stomach and to the bend of the colon. There had evidently been some inflammation of the peritoneum in this region at some time, as the firmness of the adhesions made the removal of the spleen difficult. It was seven inches long by four inches wide; its capsule was extremely thickened, giving it a whitish appearance. On section it was pale red in color. There were numerous grayish spots and streaks throughout, marking areas of proliferation of the fibrous tissues. There were also many very small brownish yellow spots which were shown by the microscope to be areas of old hemorrhage. The pancreas was embedded in fat and very adherent to the stomach and intestines. It was very hard and enlarged, especially the head of the pancreas. The gall-bladder was free; the liver was considerably enlarged, of rather peculiar shape, being especially thick in its antero-posterior diameter. Its surface was pale; it was very firm, very pale in color and rather gritty on section. The kidneys were larger than the adult kidney. The left suprarenal was overlooked, the right was removed attached to the kidney; it was much embedded in fat, not enlarged and apparently normal. The kidneys on section were found to be exceedingly pale. The cortex was from three-eighths to one-half an inch in thickness. The substance of the

kidney was very firm, the pelvis was empty. The bladder contained a moderate amount of blood-free urine; the peritoneum overlying its abdominal surface was thickened.

Thorax: The thorax was examined by the retraction of a portion of the ribs. The lungs were found to be entirely free, very pale and slightly emphysematous. There was an unusual amount of mediastinal fat of the same peculiar yellow color as that above referred to. Occupying the position of the thymus there was a mass about three inches long by one and one-half inches wide, and one-quarter of an inch in thickness, which had in a dim light the appearance of fat. There was some enlargement of the bronchial nodes. The heart contained no blood; the walls of the left ventricle were rather thickened; the right ventricle was dilated and its walls very thin. The valves were normal throughout. The heart muscle was relatively less pale than the other organs of the body. A section of the tibia was removed. The bone marrow was pinkish in color and seemed to contain less fat than normal. There was very little blood in any portion of the body; that which was present was very pale and not clotted.

The histological examination was kindly made for me by Dr. C. Y. White, Assistant Director of the Pepper Laboratory of Clinical Medicine.

The heart shows nothing abnormal. The liver cells are slightly cloudy, otherwise normal. The biliary ducts are surrounded by much connective tissue; in some areas this is from five to seven times more than normal, otherwise there is no increase in the connective tissue in the organ. The kidneys show slight cloudy swelling. The thymus gland is normal.

The Lymph Nodes: (1) Mesenteric. The capsule is not increased in thickness. The lymph follicles are prominent, being increased in size and number. The blood supply of these nodes is rich, in places it seems excessive; in still other areas there are distinct hemorrhages. Many of the lymph nodes contain fat cells, some of the lymphoid tissue being arranged in crescentic form around collections of fatty tissue. (2) Bronchial. The connective tissue is increased in the capsule and trabeculae of the lymph nodes; they show moderate congestion.

The Pancreas: The cells look small, and there is great increase in the connective tissue around the ducts, even more than in the liver.

The Spleen: Stained with eosin and hemotoxylin; there is

enormous increase in its connective tissue. The capsule is four to six times its normal thickness; from the capsule the fibrous tissue dips into the splenic substance as a coarse network forming the trabeculae. Directly under the capsule this network is very prominent, and encloses in its meshes numerous small round cells. Throughout the whole organ the trabeculae are greatly increased in thickness and the splenic pulp is reduced. In this overgrowth of connective tissue the elastic fibers are very prominent and seem to be increased. The trabeculae are well supplied with blood-vessels. Large hemorrhages are noted in several areas of this new tissue. The blood corpuscles are sharply defined in these hemorrhages and seem to be of recent exudation. In other areas there are collections of irregular clumps of fine and coarse granular pigment of light yellow to a yellowish brown color. Occasionally this pigment forms distinct plugs in the channel of the fibrous tissue. The pigment gives a very pronounced iron reaction, and is in all probability the remains of an old hemorrhage. The splenic pulp shows a marked reduction in the number of the Malpighian bodies, while those present are undersized. The rest of the pulp tissue contains many red blood corpuscles which increase in number as the Malpighian bodies are approached.

The Bone Marrow is reddened and its fatty elements are decreased. A cross section of a rib shows that the fatty tissue has been largely replaced by cellular elements which consist of large mononuclear cells (large neutrophilic myelocytes), small lymphocytes, and an increase in the number of eosinophiles. There are only a few nucleated red cells and polymorphonuclear leukocytes.

The features of this case which seem to me to be of particular interest are: (1) The great size of the spleen, extending down to within a few inches of the pubic bone.

(2) The early beginning of the splenic enlargement.

The fact that when the boy was first seen at the age of six years he had a spleen almost as large as at the time of death; the history of abdominal pain of several weeks' duration two years prior to this; the occurrence of frequent epistaxis at an even earlier period, and the statement of the grandmother that she failed to remember the time when he did not have an enlarged abdomen, are all facts which would seem to fix the beginning of this condition in infancy or early childhood.

(3) The series of profuse hemorrhages.

(4) The length of duration with so little influence upon the health of the patient. The only time that he ever suffered any serious inconvenience was at the time of the occurrence of the hemorrhages.

(5) The attack of extensive abdominal ascites, its entire disappearance and the subsequent excellent health of the patient.

(6) The mild degree and peculiar type of anemia. Chlorotic anemia with leucopenia.

There were also certain interesting conditions discovered at the autopsy, for which I have no adequate explanation; they were:

(1) The presence of so much fat, of such a peculiar bright yellow color, and especially its extensive deposit in the mesentery.

(2) The apparent general hyperplasia of the fibrous tissues.

(3) The pearly appearance of the peritoneum, especially of the visceral peritoneum. This was evidently a thickening of the fibrous elements of the peritoneum, and probably a part of the general process of hyperplasia of the fibrous tissues, and not the result of an inflammatory process limited to the peritoneum.

(4) The peculiar microscopic evidences of old hemorrhage into the spleen as described by Dr. White's report, and as seen under the microscope. And (5) The condition of the mesenteric lymph nodes. This latter is especially interesting in connection with the recent article by Warthin on "Hemolymph Glands of the Sheep and Goat," published in the May number of the *Journal for Medical Research*, in which he reports the results of a study of the lymph nodes at varying intervals, following the operation of splenectomy in these animals. In the July number of this journal for 1901, he advanced the hypothesis that under certain conditions the lymph nodes are capable of compensating for the spleen. This hypothesis "was based partly upon the general similarity in structure of hemolymph nodes and spleen, their common function of hemolysis and the occurrence of transition forms resembling accessory spleens, but chiefly upon the autopsy findings in a case of splenic anemia, in which there was throughout the mesentery fat a new formation of hemolymph nodes resembling splenic tissue." The work recorded in his recent article was undertaken to confirm this theory.

The conclusions he reaches are as follows:

(1) "After total splenectomy in the sheep there is no evidence of regeneration of the primitive spleen or of the new formation of splenic tissue."

(2) "The structural changes following splenectomy are, hyperplasia of existing lymph tissues, transformation of hemolymph nodes into ordinary lymphatic glands; and a new formation of hemolymph nodes out of" (this expression is misleading, and the author's meaning would seem to be better expressed by substituting the word in for "out of")* "lobules of fat tissue, and a later proliferation of the red marrow."

(3) "There is no evidence of red blood cells in the lymph nodes after splenectomy."

(4) "The function of hemolysis is taken up first by the hemolymph node, later by the ordinary lymphatic glands."

(5) "The hemolytic function of the hemolymph nodes and hyperplastic lymph glands exceeds that of the primitive spleen, causing an excessive destruction of red cells. The resulting anemia is later compensated for by an increased activity on the part of the bone marrow. It would appear, therefore, that the removal of the spleen leads to an increased production or retention of some hemolytic agent usually disposed of by the spleen. The effect of this hemolytic agent is either to stimulate the phagocytes in the hemolymph nodes to increased activity, or to so change the red cells that they are more easily destroyed by these phagocytes."

There are several additional conclusions which are irrelevant, but the point of interest centers in the fact that in the present case there exist a large number of lymph nodes resembling those which Warthin describes as a primitive embryonal type of the more fully developed lymph node, and that these nodes contain in their substance large bundles of fatty tissue suggesting their "formation out of lobules of fat tissue."

The case further shows marked hyperplasia of the pre-existing

* That the statement used by Warthin in this conclusion, "A new formation of hemolymph nodes out of lobules of fat tissue," may be fully understood, I quote the following from the body of the article: "The first stage in the development of a lymph node from adipose tissue is a dilatation of the small capillaries lying between the fat cells and an infiltration of lymphocytes along their walls. If, now, the capillaries become angiectatic and converted into blood sinuses through the formation of a reticulum arising from endothelial proliferation, the lymph node is formed; if, on the other hand, the capillaries remain small or undeveloped and the lymphoid tissue increased at their expense, while the lymph vessels became enlarged and changed into sinuses, the structure is that of a lymphatic gland. The essential difference between the two is the degree of development of either blood capillary or lymph vessel into blood or lymph sinus."

lymphatic tissues and evidence of increased activity of the bone marrow.

The more minute histological studies of the apparent hemolymph nodes in this case have not been made, inasmuch as Warthin's paper came to my notice too late to make this possible. One, therefore, cannot say whether or not they show all the changes manifested in those studied by Warthin in his experimental cases.

I have been content to call this a case of enlargement of the spleen with anemia. I do not feel that we have arrived at any justifiable classification of these cases of enlargement of the spleen associated with anemia and sometimes with cirrhosis of the liver. I am inclined to favor the view that these lesions are not the primary factors, but the results of some previously existing and as yet unrecognized condition. In some respects this case is unlike any of those I have found recorded in the literature. Clinically, it has many analogues. Pathologically, the spleen shows a rather greater increase in the fibrous elements and more marked destruction and atrophy of the Malpighian bodies. The peculiar tendency to general proliferation of the fibrous tissues and the remarkable fat deposits I have not seen recorded.

The etiology of this case is obscure. It is always difficult to exclude the possibility of syphilis. It has been impossible to obtain information regarding the father. No evidence of syphilis could be found in the mother, and there certainly seem to be no very suggestive evidences of syphilis in the patient. There was no history of retarded development nor, in fact, of anything to suggest serious nutritional defects in early life.

Bacteriological examinations were not made, save that sections of the spleen were stained for micro-organisms with negative results, but it is not likely, in the light of the results of such studies in similar cases, that they would have thrown any additional light upon the origin of this case.

When this patient first came under my notice, he received inunctions of mercury for some time without any evident effect. Splenectomy was suggested to the family, but declined. The difficulty experienced in removing the spleen, post mortem, suggests the probable wisdom of this decision. Why the spleen is not removed more commonly in these cases of chronic splenic enlargement, especially in those in which frequently recurring hemorrhages are constantly threatening life, I do not quite under-

stand. Even in the cases in which hemorrhages do not occur, the relief which would follow the removal of this mechanical obstruction to the functions of so many of the organs of the body would probably be complete and permanent. The ability of the lymphatic structures to take on the functions of the spleen has been clearly demonstrated, and in these long-standing cases this property of the lymph nodes is so far developed that its removal probably would not cause even temporary disturbance of function.

I have not given any special attention to the percentage mortality of the cases which have been operated upon, but my impression is that it is not sufficiently high to make the operation inadvisable.

DISCUSSION.

DR. WENTWORTH.—These cases of chronic enlargement of the spleen, associated with more or less anemia, should not be classified as a disease of the spleen. The term "splenic anemia," which has been applied to these cases, implies that the anemia is secondary to a primary disease of the spleen; this assumption lacks proof. The histologic changes in the spleen are those of chronic hyperplasia. This condition is a common one, and is due to a number of causes. There is a more or less marked increase in the connective tissue in the spleen affecting the pulp, the follicles and the blood-vessels. Bacteriologic examinations of the splenic tissue have given negative results, as have also inoculation experiments. The blood changes are those of secondary anemia; in some cases severe, in other cases very slight. With such negative evidence as this, we are not justified in giving a specific name to a condition which is so often associated with chronic diseases in other organs and tissues.

DR. MARTIN.—It seems to me that we have a great many cases of enlarged spleen without any known cause. I have seen a number of cases where the spleen was enlarged and yet the blood changes were not such as to justify the name anemias.

DR. CHRISTOPHER.—I hope at the next meeting to discuss the question from a clinical standpoint. There is no doubt that an infectious element is present, but I am convinced that it is of secondary importance and that autotoxemia is the cause. There is general emaciation, always associated with abnormal urine, general acidity extremely high and failure on the part of the bowels to perform their normal function. I consider that this type of case presents as distinct an entity as anything I know of. I find

that I get better results when I take the cases away from the breast and that milk is the most toxic food for them.

DR. HAMILL.—The anemia in this case was of a mild degree at all times, and was only emphasized on account of existing leucopenia. I agree with what Dr. Wentworth has said in regard to our lack of knowledge of the etiology of these cases, but I am at variance with him in believing that this particular type of case is of common occurrence. I have seen many instances of enlargement of the spleen in infants and children. The condition is exceedingly common, but I have never seen any, excepting this case, in which the enlargement was so great, the course so chronic, and in which hemorrhages occurred. I do not believe, in short, that these cases are in any way related to the more common forms of splenic enlargement with which Dr. Wentworth has placed them.

Gelatin in Melena Neonatorum—Called to an emergency case of melena neonatorum in a healthy family, Döllner (*Muench. Med. Woch.*, May 20, 1902) injected 40 c.c. of a 2 per cent. solution of gelatin in four doses in five hours. All the symptoms rapidly subsided. He attributes the melena in such cases to an abnormal permeability of the vessels which became rapidly repaired. This would explain why the melena did not recur after the action of the gelatin had subsided. He used a combination of 2 parts white gelatin to .12 parts sodium chlorid in 100 parts water, at the temperature of 100.5 F., making the injections near the inner margin of the scapula.—*Journal of the American Medical Association.*

A Rare Case of Congenital Deformity of the Nose.—Nicola Longo reports (*Giornale Intern. delle Scienze Mediche*, May 15, 1902) the case of a little girl of eight months, the left side of whose nose was entirely normal, while on the right side there was a trumpet-shaped appendage about 4 cm. long and 1 wide. The narrowest part of this appendage was inserted between the inner canthus of the eye and the root of the nose, and was covered with normal skin. The rest of it was free, and at the inferior extremity was a small orifice, which led to a narrow canal that extended throughout the appendage, and through which air came out when the child cried. The author removed the growth in such a way as to make a new nostril, and the results of the operation were entirely satisfactory. The abnormality was probably due to an arrest of development in about the eighth week of fetal life.—*Medical Record.*

SOME REMOTE DISEASES ARISING FROM TONSILAR INFECTION.*

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That the tonsil may be the primary seat of infection, producing lesions in remote parts, has been known for some time.

The paradigm is diphtheria, which has always been accepted by a certain number of authors as primarily a local infection, a fact that has been verified as the result of bacteriological research.

Erysipelas, in some instances (Gerhardt) has been mentioned, and undoubtedly does occur as primary tonsilar erysipelas.

Baumgarten referred to the tonsils as a possible entrance place of tuberculosis, a fact that has been fully verified by Friedman, the latter author claiming that in young children, especially, it is the seat of primary infection due to food infection.

Leyden, Meyer and Singer have shown that the tonsil is first infected in articular rheumatism; and Menzer has demonstrated the presence of streptococci in the peritonsilar tissue in this disease. Menzer has also shown that the same organism is found in the tonsils that is found in the tissue excised from a case of erythema nodosum. He expresses the belief that in a large number of infectious diseases—pneumonia, scarlatina, measles—the primary infection takes place in the tonsils.

For scarlatina this has been surmised for some time. Dowson, in 1893 stated that the essential lesion of scarlatina is to be found in the throat, just as a chancre is the primary lesion of syphilis. Further than this we are unwilling to follow Menzer. Packard, in an excellent paper on endocarditis occurring in the course of tonsilitis, gives the whole literature on this subject, and reports 5 cases of his own. The connection between angina tonsilarum and endocarditis, I am sure, will be verified by all who have studied their cases carefully. Severe infections of the tonsil have been held accountable for cases of septico-pyemia.

The object of this paper is to add two more remote pathological conditions due to infections of the tonsils to those mentioned.

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

The mechanism of the production of general infection by local infection of the tonsils is a matter still somewhat unsettled.

The tonsil represents part of almost the first barrier to infection in the mouth; all the structures of this barrier, including that of the tonsil, are essentially a mass of lymphoid tissue. On account of this structure of the tonsil we have been in the habit of ascribing to it all those functions which belong to bodies of similar structure, like the solitary follicles of the intestines, for instance, especially in connection with absorption. Unfortunately, this assumption has been difficult of verification; from investigations that have been made (Hodenpyl) it is still doubtful whether, with undisturbed epithelial covering, substances will be absorbed by the tonsil at all. Stoehr's observations that leucocytes wander through the epithelial layer to and fro, while freely accepted, do not seem to help us very much as far as absorption of bacteria is concerned; in that it is supposed that the leucocytes act only as phagocytes. Menzer has shown that in 3 cases of articular rheumatism streptococci were found in the peritonsilar tissue, especially within the blood-vessels, and believes this to be the method of general infection in this disease, as well as in endocarditis. It must be noted that Singer has found the streptococcus within the lymphoid tissue of the tonsil. But having such indubitable evidence before us as that of Menzer, we must be willing to admit that one method of absorption must be by the route of the blood-vessels of the peritonsilar tissue. The question that arises is whether this is the only route. Certain it is that bacteria have not been frequently found in the tonsils, at least not as frequently as our clinical evidences would warrant us in concluding they should be found. There are various reasons for this: It is possible to conceive of the lymph currents being so rapid that bacteria are carried through the tonsil into the general lymphatic circulation without multiplying within the tonsil; the large number of phagocytic cells may make it impossible for bacteria to develop; and, lastly, the observers who have studied this question may have used methods or material not adequate for a solution of the question. In regard to this latter, it would seem that in some conditions we are justified in suspecting these methods; compare the statements made by older observers in regard to the frequency of the tubercle bacillus in the tonsil with those of Friedman. (Hodenpyl found tubercle bacilli only once in nearly 200 cases; Friedman in 24 out of 91 postmortem examinations, but only once in

54 excised tonsils in the living.) Phagocytosis is more or less a doubtful quantity in preventing development of bacteria; after all, accepting the phagocytic theory for all that is claimed for it, when the number and virulence of the bacteria exceeds the number and resistance power of the phagocytes, the bacteria will enter. As to the rapidity of the lymph current in the tonsils no observations have been made that would lead us to believe that this becomes so great as to flush the tonsils of bacteria. If bacteria pass through the tonsils we would find them in the next barrier, the lymph nodes at the angle of the jaw. While these lymph nodes receive the lymph from the nose, the pharynx, the root of the tongue, and the tonsils, and while we know that inflammatory conditions of any one of these localities may be followed by enlargement of these lymph nodes, yet almost daily experience has shown us that amygdalitis of any sort is always followed by enlargement of the glands.

So that in view of recent bacteriological investigations, and as a result of clinical evidence, it seems to me proper to conclude that bacteria are taken up by the tonsils. In addition it might be urged that if one bacterium is taken up by the tonsils, others may also enter; this is accepted for diphtheria; it has been accepted for tuberculosis; and pus producers have been found.

The next step in the production of remote infection is of more general importance. We must admit that the bacteria may be carried into the general circulation by one of two ways, either by the lymphatic current, or by the blood. For our present purpose it is immaterial in which way this is done. But it is of the utmost importance to decide whether the bacteria appear in the general circulation, as they might do irrespective of the route. At the present time the view is gaining ground steadily that, in all infections, bacteria are found in the blood; indeed, it is claimed by some, Adami and his pupils, that bacteria are always found in the blood in health. Older statements can hardly be considered as bearing testimony to the correctness of these views, as they all have been made as the result of faulty methods. At the present time the method first described by Sittmann, with proper modification, is the only one that can be relied upon: taking large quantities of blood (as much as 40 cc.) from a vein, with a syringe, and immediately cultivating in large quantities of a fluid medium (from 300 to 500 cc. of bouillon). The more closely these directions are followed, the more constantly are bacteria

found in the circulation. This has been conclusively shown by Prochaska in pneumonia; by Cole, in typhoid fever, and, especially, in this disease by Courmont who has found the Eberth bacillus in the blood of every typhoid fever patient he has examined.

In malignant endocarditis, which is a septicemia, it has been shown by Lenhartz that lower forms of life are present in 80 per cent. of all the cases. I may add, that all the work that has been done in connection with the examination of the circulating blood in children, as far as the constant presence of bacteria is concerned is unreliable. Most of it has been done by taking a few drops of blood from the ear of the patient, and then inoculating solid media. For the present, until the method is absolutely fixed, in the adult, as to the quantity limit of blood and culture, no definite results can be obtained in children except in the presence of large quantities of bacteria.

If we now have, in addition to the presence of bacteria in the blood, a *locus minoris resistentiae*, modernly called diminished local resistance, we have the conditions necessary to explain the production of local manifestations from infection of the tonsils by bacteria.

There is one other method by means of which remote effects can be produced as the result of infection, viz., by the production and localization of toxins. Experimentally, this method apparently stands on a sound basis; whether or no the future will continue to verify its existence in the human being is a question that cannot be decided at the present time. The injection of toxic bodies has been followed by lesions in various parts of the body; but we must remember the stand taken with infection by the Fehleisen bacterium, which was at first looked upon as purely local, but now understood as making remote invasions. This seems to be the case with many other lower forms of life. Where at first the remote effects were supposed to be due to the toxin, it has been shown that they are the result of the bacteria themselves.

The first condition following angina tonsilarum as the primary infection is illustrated by the following history:

A boy eleven years of age came under observation on March 20, 1902, complaining of headache. He is of a neurotic family on the mother's side; nothing of importance on the father's side, except that his father has been successfully operated on for perforating appendicitis. The boy himself has had measles and

whooping cough, otherwise has been well. Upon examining him on the afternoon of March 20th I found him with temperature of 103° , pulse in ratio, and a follicular angina.

Culture on Loeffler's serum showed the presence of a mixed infection, staphylococcus albus and streptococcus. The angina ran a normal course, developing on both tonsils simultaneously, so that by March 22d the temperature became normal. On the evening of this day the patient began to complain of vomiting and great pain in the abdomen; temperature, 102° ; pulse, 110. Examination showed the patient lying upon the back, in the position peculiar to abdominal inflammations, very quiet except when he uttered suppressed moans on account of his pain; the abdomen was very sensitive; upon pressure sensitiveness was rather sharply localized in the right lower segment. McBurney's point was sensitive upon the slightest pressure. The colon was empty. An ice-bag was ordered; the boy was put on fluid diet when the vomiting should cease. A small dose of opium was ordered if the pain was not relieved by the ice-bag. No cathartics were given; first, because calomel had been given the day before the onset of the appendicitis; second, because the colon was empty; and, thirdly, because there were no general indications for their administration. On the second day of the illness the vomiting had ceased; the temperature was 102° F. in the morning, the pulse 100, the local symptoms very severe, a slight resistant mass being felt in the right lower abdominal segment. On the evening of this day the temperature had fallen to 100° F., and the pulse to 90; the patient resting more easily, and passing a good night.

The morning of the third day found him without fever; pulse still 90; pain abated, except upon motion; but the resistant mass somewhat increased. He was now ordered lavage of the intestines, which seemed to give some relief; this was continued daily until complete recovery took place. The patient remained in the condition described for the third day, the pain and sensitiveness gradually diminishing (including McBurney's point), and the tumefaction gradually disappearing, for eight days, when he was allowed to get up and go out. On the fourth day of the appendicitis there appeared an erythema upon the abdomen, which developed successively upon the thighs, the arms, and the back. During the course of the disease there were no manifestations on the part of any other organs. In brief, then, we have a characteristic case of appendicitis, developing in about three days after

the onset of an amygdalitis. The explanation for this fact, I believe to be not very difficult to find: the appendix is a veritable *locus minoris resistentiae*, on account of its being a rudimentary organ as to its structure and its functional activity. It has been repeatedly shown that when bacteria are injected into a lower animal they develop in such places in which the tissues have been previously affected in one way or the other; thus, Pawlowsky has shown that when trauma is produced in an animal, and bacteria are then injected into this animal, the injected organisms are localized at the place where the injury was produced.

At present it does not seem wise to lay too much stress upon the similarity of structure between the tonsils and the appendix; it may be hereafter shown that certain lower forms of life have certain predilections for certain structures; from a clinical point of view this is very attractive, but, as yet, has not been demonstrated. In regard to the presence of lower forms of life in the blood, I have no evidence to offer, for the reasons expressed before; but in appendicitis I have seen the evidences of general infection so often that I am sure these organisms can be found in the blood. The last case of this sort that has come under my observation, which will be reported in detail at some other time, is one in which an operation was done for appendicitis, no rupture, but the appendix containing staphylococcus albus pus; three days after the operation the patient had uremia from acute nephritis; with this an endocarditis; after two weeks a pyelitis. This patient had also suffered from sore throat; but disregarding this fact, it would be impossible to conceive of the conditions described above as existing without the presence of bacteria in the blood, and, considering the short time that had elapsed between the operation and the breaking out of septicemic symptoms, in all probability the infection did not come from the appendix.

In angina tonsilarum followed by appendicitis, the mechanism is the same as is shown by Lenhardt to exist in ulcerative endocarditis; blood infection and infective conditions upon the valves of the heart; in appendicitis we have the same condition, blood infection from the tonsils, infective conditions in the appendix,* and sometimes marked evidences of general infection.

The second class of cases I wish to report are those in which jaundice followed an infection of the tonsils; of these there are

* The relation between appendicitis has already been referred to in Packard's paper. In Germany also this subject has received attention.

5 cases, 3 in one family, all occurring in the winter of 1900-1901. As I had occasion to see quite a number of patients with jaundice during this season, it does not seem to me improper to speak of this form as epidemic jaundice. In all the cases, regardless of the primary origin of the jaundice, the symptoms were approximately the same, so that a detailed description of each case seems unnecessary.

The form of sore throat varied; in all except 2 there was a mixed infection, staphylococcus albus and streptococcus, in 1 a pure streptococcus sore throat; in the other that which is in my experience exceedingly rare, a pure staphylococcus aureus angina. The time elapsing between the angina tonsilarum and the jaundice varied from three days to ten days. The first symptoms noted were pain in the epigastrium and vomiting, a moderate amount of fever (maximum, 101° F.); this continued for four days on an average.

After two days slight icterus; bile coloring matter in the urine; clay colored stools; itching of the skin; slight drowsiness and enormous appetite. In all of the cases the region of the liver was sensitive to pressure, the gall bladder not full, and the spleen was enlarged in 3 cases. The jaundice lasted, depending upon the intensity of the disease, from three to five weeks, and in all cases there was, at some time, subnormal temperature which did not disappear until the patient had fully recovered. The three patients in one family, age five, seven and a half and nine years, all had the same infection of the tonsils, but the infection evidently had grown less virulent as it passed through the second and third child, in that the attacks of jaundice in the latter were much less intense. Albumin was not found in the urine of any of these cases. No pathogenic organisms were found in cultures made from the stools. There was no mortality. In regard to the acceptance of the term "epidemic jaundice" there can be no discussion, in that the occurrence of epidemics of jaundice has been reported by a number of authors. (Kissel in his excellent article mentions twenty-one authors, German, French, English and Italian.) It is, however, strictly proper to hold differing views upon the existence of that form of disease called infectious jaundice, notably in regard to its frequency. This form of jaundice has been called Weil's disease, for the reason that this author (1886) found a combination of symptoms, jaundice, nephritis, enlargement of the spleen, with fever, which seemed to justify him in

describing what he conceived to be a disease *sui generis*, and not related to the ordinary forms of jaundice. Since that time it has been repeatedly shown that (*vide* Kissel) variations occur in all directions as far as development of symptoms is concerned; indeed, Hennig claims that of Weil's combination of symptoms the most important one, jaundice, may not exist, and yet the same clinical conditions may be present. Again, cases occur running their course so mildly or so severely that Weil's description does not hold good. Finally, the French authors (especially Chauffard, 1885) have described the same conditions so thoroughly that all forms were considered before Weil's paper appeared; therefore, no reason exists for either calling this form of disease Weil's disease, or of taking it out of the class of the ordinary forms of jaundice. As to the mechanism of the production of this form of jaundice we are by no means well informed. It has been clearly shown that jaundice may be produced as the result of the introduction into the circulation of certain toxic bodies; phosphorus (Wyss, Ebstein) and santonin (Cramer). It has not been shown experimentally that the bacterial toxins produce jaundice.

For bacterial causation we find more evidence: Luerman and Jehn, describe epidemics apparently due to vaccination; of 96 cases reported by Kissel, 14 had some catarrhal affection of the respiratory tract; he states that a number of authors have seen jaundice in connection with influenza, a fact to which I can also testify; jaundice occurs in typhoid fever, the Eberth bacillus being found in the gall bladder as well as in the large biliary ducts. It also occurs in cholera and other acute infectious diseases. The finding of the typhoid fever bacillus in a gall bladder of patients without typhoid fever lesions in the intestine is of great importance in showing that bacilli which are found in the biliary passages must not, of necessity, ascend from the intestine but may come from the blood. As a matter of fact, experimental evidence shows that when bacteria are injected into the blood they are eliminated by the liver and the kidneys, a fact again verified by Pawlowsky. Whether these lower forms of life produce jaundice either by causing an obstruction of the interlobular bile ducts, by producing a cholecystitis, or in any other way, is a matter of secondary importance, in view of the fact that it has been shown that they may produce jaundice. As far as the bacteriology of infectious jaundice is concerned, this is still in its

infancy, but we are justified in the conclusion that bacteria being present in the blood, from any local infection, they leave the body by way of the liver, and jaundice may follow.

There is one other method by means of which jaundice could be produced from a remote infection, viz., by way of the gastrointestinal tract; a gastritis being produced which is followed by a duodenitis. At the present time there seems to be a tendency to minimize the possibility of production of jaundice in this manner. However this may be, in our cases this manner of production of jaundice may be excluded; there were no evidences of gastritis except the vomiting, and this was largely reflex, coming on with the pain and disappearing when this grew better; but, above all, the gall bladder was not full. When there is obstruction in the ductus communis choledochus sufficiently well pronounced to prevent the greater part of the bile from flowing into the intestine, the gall bladder is always distended. In children the gall bladder is more easily palpated than in adults, and yet in not one of these patients was the gall bladder found distended.

DISCUSSION.

DR. JACOBI.—Do you think it is necessary for the epithelial covering of the tonsils to be interrupted for the admission of infection? I believe that is a mistake. There are very few normal tonsils, particularly in adults. There are changes in the tonsils as a result of the frequent diseases of infancy. But, even normally, the epithelium of the tonsils is not contiguous, as Stoehr proved thirty years ago.

DR. FREEMAN.—A case somewhat corresponding to Dr. Forchheimer's first case came under my care. The patient was a seven-year-old boy with sore throat, and tonsils which were somewhat enlarged and very red; slight fever and pain over his appendix, and with rising temperature. On the third day there appeared a slight blowing murmur over the apex of the heart. Salicylate of soda was administered, the temperature went down and the symptoms disappeared.

DR. CHRISTOPHER.—About four years ago I noticed a number of cases of what were clinically bronchitis, terminating with crises, and where there was no lung consolidation. I attempted to look into the epidemic which was prevailing and examined 200 cases, made cultures from every case of so called grippe that was met with, and in only two or three of these cases were there any influenza bacilli found, but there were pneumococci, staphylococci and streptococci. I learned to look upon certain throats as abnor-

mal which I had previously regarded as normal. The enanthem was not limited to the tonsils at all, but the characteristic feature was its manifestation upon the soft palate. The free edges of the anterior pillars were found reddened and extending upward on both anterior pillars, having a well-marked line of demarcation and involving the uvula. With this there was always tonsilar involvement, which was more difficult to make out than the redness in mild cases, and it is less distinctive. A number of these cases showed cultures of pneumococcus. In addition there was occasionally exudate of the pultaceous variety. The location of this upon the soft palate is, to my mind, as diagnostic as anything could possibly be from a clinical standpoint; and I would rather make a diagnosis of pneumococic sore throat than diphtheria from a macroscopic examination. Involvement of many organs occurs in these cases. One case had earache, and three days later, when the ear was opened, pneumococci were found in the pus. On the fifth or sixth day the lung consolidated, and this consolidation continued without any tendency to resolution, and the child died. Endocarditis and nephritis developed and a terminal meningitis. In a great many of these cases endocarditis has been found. It is a form of endocarditis that disappears, but returns again every time the child gets a cold.

In addition I have found one case where the appendix became involved. The case was an absolutely typical one with a typical throat as described. I first saw the boy in the evening, and the next day he complained of pain in the side and said: "Doctor, I have appendicitis." He said he had had it two years before, and knew that he had it again, and it was so. The case was seen by two surgeons who declined to operate. One of the surgeons said that it was a quite usual experience to him to find appendicitis in gripe, and that the cases always recovered without operation. The headache and backache disappeared with the changes in the appendix. One peculiar manifestation I have found in connection with this is enlarged lymph nodes in the neck, with sensation of suppuration. In one particular case, where we had the pneumococcus present, the nodes seemed to me so certainly to contain pus that I had Dr. Fenger see it, and he agreed that they probably contained pus, but would like to postpone opening them for a day. The day following, the temperature dropped. It was as sharp a crisis as I have ever seen, and within a few hours the swelling of the lymph nodes disappeared. In a few weeks another case of the same kind came under my care. In neither of these cases was there involvement of the lungs.

DR. JENNINGS.—During the past year I saw in Detroit an epidemic similar to that just described by Dr. Christopher, and I made bacteriologic studies with the same experience that he has related. The cases were those of upper respiratory pneumococcus infection. I have not noticed the peculiar pharyngeal phenomena described by the doctor, but the pneumococcus infec-

tion is pretty certainly the cause of these epidemics of pharyngeal catarrh.

DR. FORCHHEIMER.—I agree with Dr. Jacobi as to the contiguity of the epithelium of the tonsils, but I think that our clinical evidence that bacteria are taken up by the tonsils is too strong not to be believed. The tonsil does have bacteria within it frequently, not only tubercle bacilli, but other forms. I am glad to have heard the confirmatory reports in regard to the connection between jaundice and appendicitis and the localized infection. That was the point I wanted to bring out. I have seen a number of cases where jaundice followed infection of the bronchial tree. The great point is to recognize that in the majority of these cases of infectious disease we are dealing with a septicemia and as we go further a great number of diseases will be added to this list. I want again to call attention to the tonsil as a place of localized infection in these septicemias. I do not think all these infectious diseases begin in the tonsil, but I am sure that a large number of the general infections arise from the tonsil, and that this fact has been overlooked.

Improvement of Milk Supply.—The Department of Agriculture has just issued a neat pamphlet entitled "Market Milk; a Plan for Its Improvement," by Raymond A. Pearson, assistant chief of the Dairy Division of the Department. Its object is given in a prefatory statement, viz., to answer questions as to the means of improving the milk supply of committees by showing the ideal conditions, or rather those that can be practically realized wherever it is seriously attempted. It does more than this, however, it lays down a plan of organization of local commissions mainly or entirely of physicians, who are to educate the dairy men and the public as to the requirements of the ideal or model dairy product and to endorse the milk supply from such as furnish it under the proper conditions. The work of the local medical societies of New York and Philadelphia is noticed and the forms used by the Philadelphia Pediatric Society and the circular sent out by the New York County Medical Society are given in an appendix. While the methods proposed would require a revolution in the milk trade, they will ultimately have to be followed and the general circulation of this pamphlet will prepare the way not only by instructing the dairy men but by educating the public. There has probably been no more important minor publication issued by the Department than this one, and it is to be hoped that we shall before long see widespread results.—*Journal of the American Medical Association.*

CONCLUSIONS AS TO THE TREATMENT OF TUBERCULOUS PERITONITIS IN CHILDREN.

FROM A STUDY OF CASES TREATED AT THE CHILDREN'S HOSPITAL
FROM 1884 TO 1902.*

BY THOMAS MORGAN ROTCH, M.D.,
Boston.

I am at present preparing a report of the cases of tuberculous peritonitis which have occurred at the Children's Hospital during the past eight years. This paper will be published later, and what I wish to do to-day is simply to state when, and in what class of cases, laparotomy should be performed with a reasonable chance for recovery, and to present some cases which recovered after the operation for laparotomy.

The total number of cases admitted to the Children's Hospital in which the diagnosis seemed reasonably certain was 69. Of these, 39 were boys and 30 were girls.

In regard to the age, the chief points to be noticed are, first, that tuberculous peritonitis in early life is rare in the first year, and when it occurs at this age, it is almost universally fatal, as it is almost invariably part of a general tuberculosis, and is for that reason not amenable to treatment by laparotomy.

Second, that the most common age for the disease to appear is from one and one-half to four years.

Third, that the cases of tuberculous peritonitis may be divided, pathologically, into primary and secondary cases. The secondary cases are most frequently those which are infected from the lungs, from the intestines, and from the mesenteric lymph nodes.

Fourth, where the lung or any important organ is the primary cause, the prognosis is that of general tuberculosis, and laparotomy in these cases is seldom of any avail. This class of cases includes those in which there are tuberculous ulcers of the intestine. Tuberculosis of the mesenteric lymph nodes, however, as a primary cause, does not mean that the cases are necessarily fatal, or that they cannot, under certain circumstances, be relieved by laparotomy; therefore, where the tuberculosis is primarily in the

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

mesenteric lymph nodes, laparotomy is indicated in the treatment, as we have no means of determining in these cases, excepting by trial, whether the laparotomy will be successful or not. Finally, where the tuberculosis is primarily in the peritoneum, laparotomy is essentially indicated and is often followed by complete cure.

Fifth, there is a distinction to be made between those primary cases in which, first, there are many thick adhesions and advanced tuberculous lesions not accompanied by the presence of much fluid; and second, where the tuberculosis is represented by miliary tubercles of the peritoneum with ascites.

In the first class of cases, although the prognosis is not so good as in the second, still laparotomy should be performed, as in a number of these cases complete recovery took place just as it has so often taken place in the second class with ascites. The second class is the most favorable for recovery by operation in children, of all the varieties of tuberculous peritonitis, and laparotomy should be performed without question in this class of cases.

In the series of 69 cases which I have just spoken of as studying at the Children's Hospital, the fatal cases were those in which the tuberculous peritonitis was secondary to a primary tuberculosis of some other important organ, but in a certain proportion of these cases there were only to be found marked local lesions.

The cases of recovery consisted mostly of those in which there were no advanced tuberculous lesions of the peritoneum, and where there was a considerable amount of fluid in the abdomen. There were, however, some cases where thick adhesions and advanced tuberculous lesions were present in which recovery also took place.

Although it is not yet determined how many years it is necessary to wait before we can say that complete recovery from the tuberculosis has taken place after laparotomy has been performed, yet, judging from this series of cases, there is no doubt that the patient should be given the benefit of the chance; and that laparotomy should be performed, notwithstanding the fact that there are well-known cases of spontaneous recovery. I have arrived at this conclusion not only from a study of my own cases, but also of large numbers of those reported by other observers, and I believe that this conclusion is correct, because, although a case may

get well without laparotomy, the large majority do not, and when we have made a diagnosis of a localized tuberculous peritonitis, we are unable to say whether such localized process may not at any time become general and result fatally.

Taking into consideration also that an exploratory laparotomy, when properly performed, is a safe procedure in comparison to nonoperative treatment, and also considering that merely an exploratory laparotomy in many cases seemingly cures the disease, it is better to operate at once and to allow the patient the benefit of the chance.

The cases which I present for your inspection to-day are only six out of the twenty which were discharged from the hospital relieved. The others have been heard from by letter, but I was only able to get this small number to come to the meeting, as they almost all lived at a distance from Boston.

CASE I.—M. B., girl, age two years and three months, operated on in October, 1897; the operation for the tuberculous peritonitis being complicated by an ovarian cyst which was removed at that time. There was much abdominal distention, a large amount of fluid and no adhesions. She recovered rapidly and has been perfectly well ever since.

CASE II.—H. N., age three years and ten months, operated on May, 1900. Much abdominal distention with considerable fluid, adhesions moderate. Made a good recovery and has been well ever since.

These two cases represent the more favorable class of cases for operation.

CASE III.—F. S., boy, age two years and ten months, operated on June, 1900. There was some abdominal distention with gas, no fluid was found, and there were moderate adhesions. Recovered, and has been well ever since.

CASE IV.—C. L., boy, age one year and eight months, operated on July, 1900. Considerable distention from gas, no fluid, no adhesions. Recovered, and has been well ever since.

CASE V.—B. A., boy, age three years. Some distention from gas, no fluid, moderate adhesions. Made a good recovery and has been well ever since.

CASE VI.—E. P., boy, age two years, operated on January, 1901. Abdominal distention from gas, no fluid, no adhesions. Recovered, and has been well ever since.

Before closing this paper I wish to acknowledge the courtesy of my colleagues, both medical and surgical, at the Children's Hospital for allowing me to report the cases which happened to occur in their respective services, and also to thank Dr. Maynard Ladd for systematizing and arranging the cases from a study of the records.

DISCUSSION.

DR. ADAMS.—This subject opens up a wide field for discussion. As for my colleague in Washington and myself, we have been in favor of exploratory operation ever since these cases first became of interest to the profession. I do not believe they will get well when let alone, and I am in favor of operation at once. We have had three cases of operation and two successes, which I think is encouraging.

DR. ACKER.—What was the condition of the lungs and lymph nodes in these cases?

DR. ROTCH.—All the cases were examined before operation, and we did not operate where there was primary trouble in the lungs or lymph nodes. Where there were primary lesions elsewhere of marked character we considered that laparotomy was not indicated.

DR. FORCHHEIMER.—Did any of your female patients have leucorrhea? Vierordt called attention a few years ago to the finding of the tubercle bacillus in leucorrhæal discharges, and in two cases we have found the tubercle bacillus in this way. One of them has just been operated upon for localized tuberculous peritonitis. An interesting question is whether the bacilli ascend, or whether the vaginal infection is a result of the peritoneal. I think we should try other methods before subjecting the patient to a laparotomy, although when properly performed the operation is not attended with much danger. I always use other methods first, however. I do not know the philosophy of their use, any more than we know why cutting into the abdominal cavity and letting in the air kills the tubercle bacilli, but we know it does good, and we certainly know that cases get well without laparotomy. If, after a certain lapse of time, they do not recover, then a laparotomy should, of course, be done. It is difficult to tell what cases should be operated on. If you have chronic lobar or lobular pneumonia, such a case should certainly not be touched, for it will in all probability die anyhow. If, on the other hand, the process is limited to the peritoneal cavity without evidences of activity in other important organs and the patient has been given a fair chance with both local and general treatment, laparotomy should

be done. I want, especially, to put myself on record as taking the view that the operation must not be looked upon as a *dernier ressort*, but as an indication to be filled at the proper time in proper cases.

DR. KOPLIK.—The fact there is a difference of opinion on the subject shows that it is a difficult matter to come to a conclusion about. In some statistics published about a year ago by Herschfeld, in which about 50 cases were collected; he showed that after operation the percentage of recoveries was 33 per cent. Recently there was published a statistical series of cases not operated on, and in which the percentage of recoveries was about the same. So that it is one of the most difficult questions to decide as to whether operation benefits these cases or not. In my service at the hospital we have had in the past year 5 cases; 2 of the miliary type, and the others with large masses in the abdomen. We operated on 3 of the 5. One case possibly of the miliary type was left alone. This patient increased in weight under hygienic conditions and good food and certainly seemed much better when he went out than when he came into the hospital. Another case (miliary) was operated on and recovered. In another case with masses in the peritoneum and no lung infection at all, the result was disastrous. The patient died of exhaustion shortly after operation. Another case with masses is now in the ward, and was operated on a few days ago. I think we must judge somewhat by the character of the cases. If the children are getting along well under good hygiene and increasing in weight and general condition, I should leave them alone; if a patient is losing ground with no complications elsewhere, with outspoken tuberculous peritonitis, I would give the child the benefit of the last hope by advising operation.

DR. CHAPIN.—We must bear in mind that these cases sometimes open themselves at the umbilicus, a spontaneous opening. I have seen two such cases. We are very much indebted to Dr. Rotch for this presentation. It furnishes valuable data for reference.

DR. CAILLÉ.—This is an important demonstration, particularly in view of the skeptical attitude of many physicians toward timely operation for this disease. Two years ago I reported to this society 11 cases operated upon. Since then I have had 6 more cases, altogether 17 cases, and of these 17, 4 are alive and show absolutely no symptoms, not even a rise of temperature, which has been taken for months. A number of other cases are alive but not cured. Some have died. In a number of my cases two, three, and five years have elapsed since the operation.

As regards the indication for laparotomy, I believe that laparotomy is indicated as soon as we make the diagnosis; or better still, as soon as we suspect tuberculous peritonitis. Colleagues who claim cures of tuberculous peritonitis by medication and other

means should remember that, as a rule, a positive diagnosis can only be made by opening the abdomen. You may suspect tuberculosis, but you are not sure of your diagnosis.

DR. COTTON.—I remember Dr. Caillé's presentation two years ago, and at that time I mentioned that I had a case under my care and was encouraged by the presentation to operate. When I got home I talked to the mother of the boy and convinced her that an operation should be done. Some other matters claimed my attention for a week or so, and when I returned the boy was making fair progress and the operation was postponed, and finally he recovered without operation. Since then he has gone through a case of typhoid fever. The boy was ten years of age. I have had three cases since that. None of them has been operated upon, two have recovered and the third is promising. As regards positive diagnosis, I agree with Dr. Caillé. I do not see how the diagnosis can be made definitely without laparotomy. A dry peritonitis, with a full abdomen and with evident masses in the omentum, seems to me to be a contraindication for operation.

DR. JACOBI.—I have no figures here either of deaths or recoveries, but I think every one of us sees a good many cases, and I have always been in a position of being compelled to give an account of my experiences and results once or twice a year. They are as follows: we meet tuberculosis that has healed in a great many instances; we find the evidences of that in the living, and more especially in the dead, at autopsies. We find healed tuberculosis in the lungs where we are apt to expect it least; on the pleura and in the bones, and on the peritoneum also. So long as the disease is localized, it is apt to heal, provided the patient is placed in good circumstances, sometimes even under the influence of very bad conditions. As soon, however, as it is disseminated, it is apt to go on and prove fatal. Tuberculosis of the peritoneum is generally in the beginning a localized disease, perhaps more so than pleural tuberculosis. We make a diagnosis of tuberculosis of the pleura and follow it up for years before seeing anything in the lung. Cases of persistent tuberculosis are frequently not attended with fever. The acute cases, however, are of a different character and are more progressive and apt to terminate fatally in a short time. So long as the disease is localized, it is apt to heal, no matter what you do. Many of my cases have gotten well by simply putting them in good surroundings, with good food and cod liver oil. I have seen a number of such cases with local peritonitis get well under this treatment, and I have seen them get well with laparotomy, or with iodin, or with guaiacol, or with arsenic and other things. But, so long as they are not attended by fever, and so long as the disease is localized on the peritoneum, mostly with ascites, I should not think of urging a laparotomy, because I see so many of these cases getting well

without it. What should we do when the tuberculosis has become disseminated, as after a year or two when we find tuberculosis of the pleura and finally of the lungs? Well, then none of our treatment will save the patient. Therefore I do not know if I am not prepared to say that laparotomy does not do anything in such cases, or that it has never cured a case that would not have gotten well without it. I am willing to accept the data given by Dr. Rotch, but, at the same time, I have the impression that the number of cases that recover compared with the whole number of cases is about as favorable on one side as the other.

DR. KOPLIK.—I want to say a word in explanation. No one would say positively that miliary tuberculosis existed without opening the peritoneum. On abdominal examination and through the rectal wall, you can exclude the other forms, and thus make a probable diagnosis.

DR. MILLER.—I should like to put on record here a case of tuberculous peritonitis under my care that recovered. The patient, a girl, aged nine, had the strongest clinical evidence of tuberculous peritonitis. She was put to bed, given good food, good hygienic surroundings, and cod liver oil and iodoform were administered by inunction. The ascites disappeared and the tumors gradually melted away, the patient leaving the hospital after six months in good condition. I am of the opinion, though, that an exploratory operation seldom does harm, and should always be undertaken after a fair trial of medicinal means.

DR. SEIBERT.—It has been stated here that tuberculous peritonitis is a local disease. I am not prepared to accept that statement. To my mind, it is nothing more nor less than a local manifestation of systemic tuberculosis.

DR. ROTCH.—My object, of course, in this paper, was to determine when to operate and when not to. Dr. Koplik says it is his last hope. I can only say that I am surprised that he should take this position in the face of the lack of danger in laparotomy and the results we are getting continually in all parts of the world. You may say the same thing about empyema. A number of cases get well spontaneously, but we do not wait—we operate. You can never know which case is going to get well without operation, and we do know that a large number will die if not operated on. As to Dr. Cotton's remark about conservatism, I do not think it is conservative not to operate. Of course every one should not undertake the operation, but only the skilled surgeon; the point being that it is safe when properly done. In reply to what Dr. Jacobi says of there being equally good results without operation, I do not think statistics will support his view; they certainly do not in this set of cases. Here we have patients dying without operation, 20; after operation, 12. The cases of spontaneous recovery are rather few, and how can you know in the beginning which cases will be the spontaneous ones? We certainly know that

there is danger in waiting. After you know that it has ceased to be a localized condition, then there is no use to operate. It seems to me that unless you are doubtful as to its being a comparatively safe operation you are taking a very unsafe position to say you will wait. Why not operate in the very beginning and give the patient the benefit of the chance? I have had patients get well without operation; but that does not make me postpone operation. Trusting to the iodids is, I think, very unsafe in any case; for at any time the disease may become disseminated and the proper time for operating lost.

DR. JACOBI.—I have not said that I recommend the iodids as a cure for tuberculosis, general or local. I only say that I see patients getting well—I might say, if you wish, in spite of the iodids. They have got well no matter what has been done, even after laparotomy. What I meant to state as my opinion is that we cannot prove that laparotomy cures our cases so long as there are so many cases that get well without operation. If I speak of the treatment of tuberculous peritonitis with guaiacol, rest and good food, it is because I know that this treatment will do some good. As a rule, I treat such patients with arsenic also, given for a long time. I seldom give iron in these cases, because they do not bear it well. It is never tolerated as long as there is an increase of temperature. The best way of relieving the heart and stimulating the circulation generally is with cold water; so I recommend rest, proper diet, guaiacol and arsenic, and cold water, externally with vigorous friction. If I could promise that laparotomy would cure, I would laparotomize them once a week.

DR. ROTCH.—I make the rule to operate at once in suitable cases such as I have endeavored to describe.

Wounds of the Heart.—L. L. Hill reports (*Indian Medical Record*) two cases, one being that of a girl of eight years. She had carried in her shirt-waist a needle two and a half inches in length, which she had driven into her heart by accidentally falling against a tree. Her countenance was anxious, pulse rapid and weak, and respiration somewhat labored. She had slight pain about her heart. Upon inspection it was found that the foreign body had entered the fifth intercostal space on the left side, and with the pulsation of the heart the head of the needle could be seen to move under the skin. Under cocaine, an incision one inch in length was made down to the needle and the latter extracted. Recovery was without incident.—*Medical Record.*

TWO CASES OF UMBILICAL FISTULAE, DUE TO TUBERCULOUS PERITONITIS.*

BY GEORGE N. ACKER, M.D.,

Washington, D. C.

CASE I.—W. R., aged five years, male, white, came under my care at the Children's Hospital, April 4, 1902.

FAMILY HISTORY.—Father and mother both living, and in good health. One other child, who is healthy. Tuberculous history on maternal side.

PREVIOUS HISTORY.—Labor and birth normal. Never breast-fed—condensed milk given. Has always been considered a healthy child.

PRESENT ILLNESS.—During the summer and fall of 1901 he had ascites. After remaining in bed for two weeks, this disappeared. There then appeared a hard, swollen mass in the region of the umbilicus. There was no marked abdominal pain. Last October he had pertussis, and cough has persisted since. Two weeks ago, during a paroxysm of coughing, a rupture of the abdominal wall through the umbilicus occurred, and a fecal fistula resulted.

Appetite is very poor. Has a severe cough, loose and bronchial in character. No expectoration. Fever at night; no sweats. Desires to sleep constantly. Micturition free.

PRESENT CONDITION.—Extreme emaciation. No deformities. Superficial lymph nodes are swollen. Chest walls are flattened antero-posteriorly. Expansion is diminished. Percussion note is impaired over left apex. Throughout both lungs, and most marked over left apex, are numerous liquid râles, large and small. Frequent loose bronchial cough. Heart sounds are weak. The second pulmonic sound is accentuated. Pulse is rapid and weak, 130 per minute. Moderate leucocytosis present. Hemoglobin, 70 per cent.

Appetite is poor. Desire for water is constant. The feces are passed through a large fistulous opening in umbilicus. The

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

stools are frequent, loose, yellow and digested, with some mucopurulent material present. The abdomen is distended and tympanitic. Passing through the center of umbilicus there is present a sinus as large as a ten-cent piece, the edges hard and undermined. The tubercle bacillus was found in the pus.

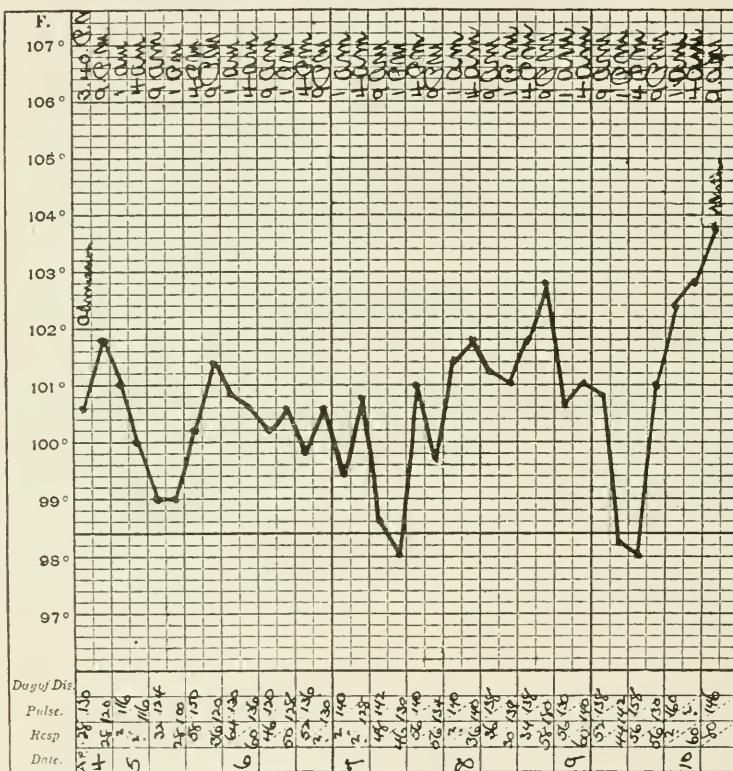


CHART OF CASE I.

The liver is about an inch below the ribs. It is impossible to feel the spleen.

Intellect impaired and dull, cerebration slow. Lies in semi-stupor; eyes half closed. Sensation and motion unimpaired. Special senses normal. Voids urine involuntarily at times. Urinalysis negative.

PROGRESS OF CASE.—The child had loss of appetite with profuse sweats and died of exhaustion April 10th, after being in the hospital six days. (See Chart of Case I.)

NECROPSY.—The umbilical fistula lead down to a large, walled off cavity formed by adhesions to the abdominal wall. From this there was a second fistula leading into a large mass of adhesions and enlarged lymph nodes, from which fecal matter exuded. This connected with a rupture in the lower one-third of the ileum at the base of a large tubercular ulcer—the tear being about one-fourth of an inch in diameter and situated in the lumbar region. There were firm adhesions present, binding and matting viscera and intestinal coils. Tubercles were seen everywhere.

All the mesenteric lymph nodes were markedly enlarged and caseated. Numerous ulcerations were found along the course of the small intestines. The spleen was infiltrated with tubercles. The liver was somewhat larger than normal, with few caseating areas. The kidneys were normal.

The lungs were universally involved. The left apex was consolidated. The bronchial lymph nodes were swollen and softened in places. The heart muscle was pale and soft. There was marked congestion of the brain, but no tubercles. The tubercle bacillus was demonstrated in the various organs and glands.

CASE II.—M. F., aged eight years, female, colored, entered Children's Hospital April 27, 1902.

FAMILY HISTORY.—Father and mother both living and in good health. Patient is the only child. Tuberculous history on paternal side.

PREVIOUS HISTORY.—Labor and birth were normal. Breast-fed. Dentition normal. About four years ago had severe attack of adenitis. Lymph nodes of neck and axilla were involved. Cervical lymph nodes were excised and a sinus has persisted since. Has had pertussis. Subject to attacks of acute coryza.

PRESENT ILLNESS.—Six weeks ago was taken with severe pains in abdomen, followed by ascites, diarrhea and progressive emaciation. Seven days ago rupture of abdominal wall occurred through umbilicus, with mucopurulent discharge tinged with fecal matter. Bowels are constipated. Has a severe cough.

PRESENT CONDITION.—Body very poorly nourished; emaciated; no deformities. Face is puffy and swollen. Expression is dull and heavy. Apathetic, except when disturbed, then she becomes restless and excitable. A few cicatrices are present on neck and upper portion of thorax. Three fistulous openings are present, one on either side of neck and one in upper and anterior por-

tion of right axilla. These discharge a small amount of seropurulent material. The superficial lymph nodes are enlarged, especially in the cervical region. There is slight nasal discharge.

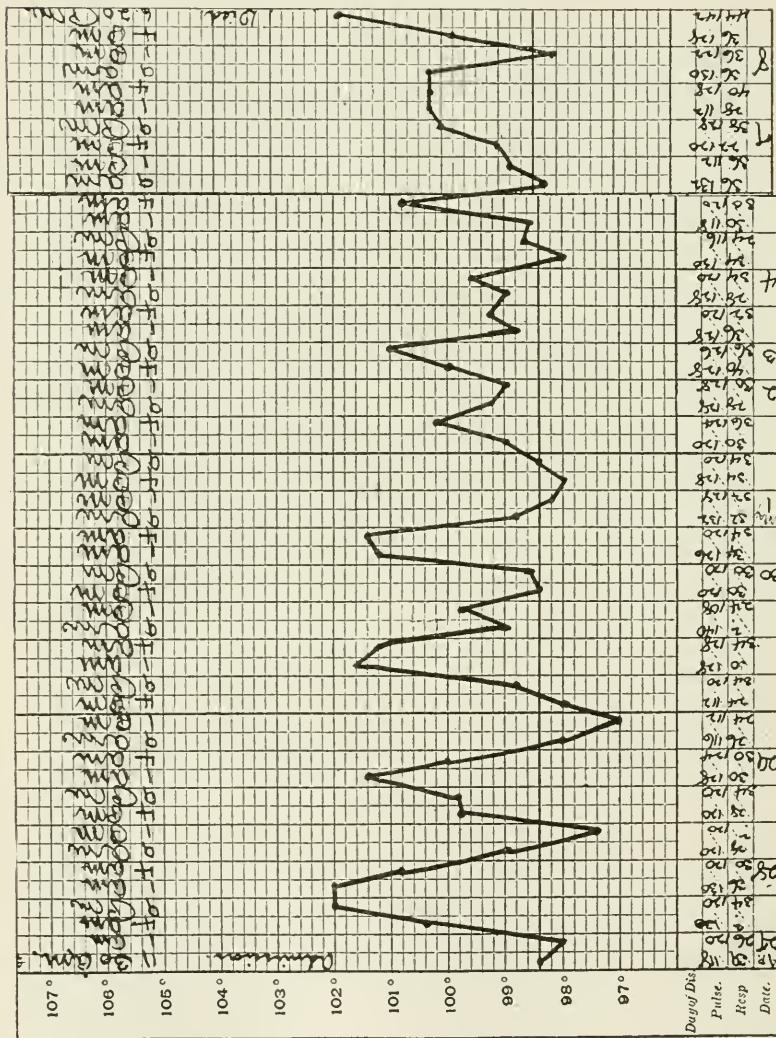


CHART OF CASE II.

She has a frequent loose bronchial cough. Respiratory movements are restricted on right side. Dullness on percussion, with harsh breathing, and large mucous râles are present over right

apex. Moist râles, both large and small, are found throughout both lungs, less numerous on left side. Heart sounds are good. Peripheral circulation is not good; extremities are cold and nails get blue. Leucocytosis present. Hemoglobin, 58 per cent. Digestion is good. Appetite is ravenous. From one to four loose yellowish stools in twenty-four hours. Abdomen is markedly distended and tympanitic. Liver and spleen are not palpable.

In the centre of the umbilicus is a small opening about the size of a pin's head, clear cut and sharply defined, surrounded by an area of redness and infiltration. From this opening exudes a small amount of yellowish serum, having a fecal odor.

Intellectual faculties impaired. Mind wanders at times. Voids urine involuntarily at times. Sp. gr., 1011. Reaction acid. Albumin, slight trace. Urea, gr. v to the f⁵j. Microscopical examination negative.

The diazo reaction was negative. Three tests were made.

PROGRESS OF THE CASE.—There was very little discharge from the fistula until the 29th of April, when a second fistula appeared to the left and half an inch below the first one. The child became weaker, and was in a semi-stupor nearly all the time, and died on May 8th. (See Chart of Case II.)

NECROPSY.—Only partial examination permitted. The fistula was traced downward and to the right, leading into a sac walled off by fibrous adhesions. From this a second opening was found, entering a large mass of adhesions and enlarged mesenteric lymph nodes. There was in communication with this a rupture of the middle portion of the small intestine, situated just above the bladder and discharging liquid feces. Adhesions were everywhere present, the omentum was thickened and all parts studded with miliary tubercles. The spleen contained small yellowish masses. The bronchial lymph nodes were enlarged. The apex of the right lung was consolidated.

These cases I think, illustrate very well the condition described as perumbilical tuberculous abscess. Both of them ran a very rapid course. Recovery has been reported in such cases even after a fistula has discharged pus for months. In both of my cases the tubercular process commenced in the thorax, probably in the bronchial lymph nodes, and afterwards involved the intestines, from which it passed outward to the peritoneum. The rupture at the umbilicus was due to a weakness at this point owing, no doubt, to a congenital defect.

TYPHOIDAL APPENDICITIS IN CHILDREN.*

BY A. SEIBERT, M.D.,

New York.

The only excuse for relating the histories of the following two cases is to call attention to a complication of typhoid fever in children which, on account of its rarity, has been somewhat neglected by pediatric writers. While Osler ("Practice of Medicine," p. 24), when speaking of typhoid in adults, states that "perforation of the appendix is not very uncommon," neither Rotch nor Holt mention appendicitis as a possible complication of typhoid in their pediatric text-books. Of the foreign authors Baginsky (Berlin), Ashby (Manchester) and Filatow (Moskow), also omit this subject in their text-books.

In my personal experience I do not remember ever having recognized typhoidal appendicitis in a child before, but am inclined to think that this was not due to its entire absence, but simply to an oversight on my part. In fact, I see no reason why typhoidal appendicitis should be less frequent in children than in adults, as both affections are common enough during the first ten years of life.

CASE I.—Abraham M., aged eleven years, had been suffering from headache, somnolence and languor for over a week, but had attended school, when suddenly, on May 19, 1901, he was seized with sharp pains in the abdomen. The family physician found the boy very ill, with a rectal temperature of 106.2° F., and what appeared to be stomach cramps. Enemata and calomel reduced the temperature to 105° F. the next day, but the pain remained the same. I saw the boy in consultation during the ensuing evening and observed the following: temperature, 104.6°; pulse, 96; occasional sighing; apathy; slight muscular tremor; slow speech; spleen slightly enlarged, no tympanites, but marked tenderness over the right abdomen, slight dullness over the right iliac fossa.

In attempting to diagnosticate, it was at once clear that the high temperature and comparatively slow pulse, the somnolence

* Read before the American Pediatric Society, Boston, May 26, 27 and 28, 1902.

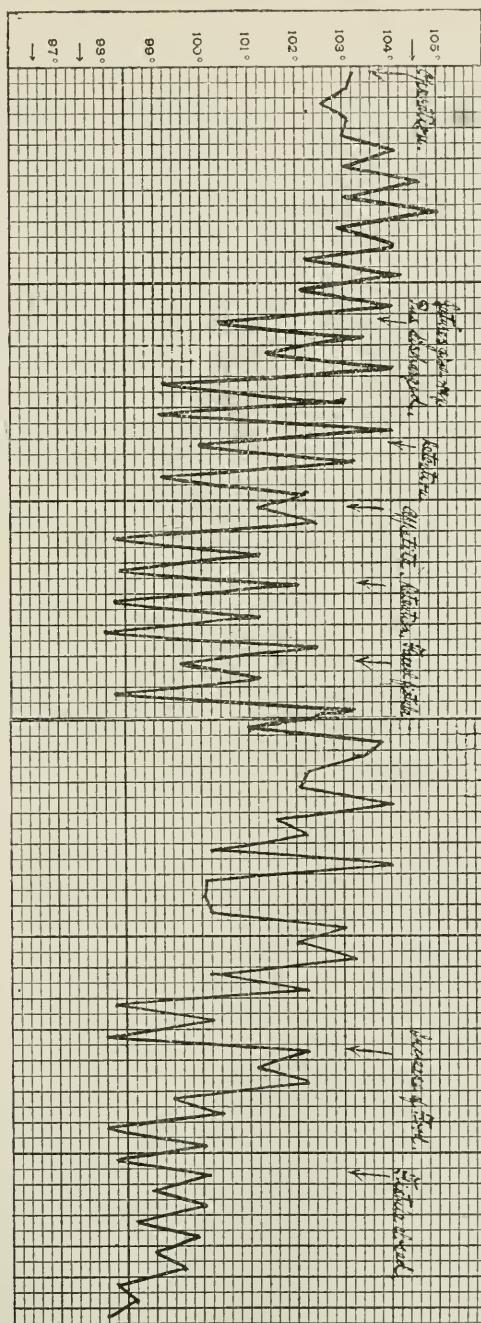


CHART OF CASE 1.

and the headache, pointed to typhoid infection. As to whether the local peritonitis was due to perforation of a typhoid ulcer or to appendicitis, was left an open question, to be answered after laparotomy (which I urgently advised) had been performed. The patient accordingly was removed to St. Francis's Hospital, where Dr. F. Kammerer removed the ulcerated appendix the next morning. The visible intestine was found to contain numerous typhoidal infiltrations. Widal's test gave a positive reaction.

The further history of this case (as illustrated by Chart no. I.) is but of interest in so far as the high temperature and the other symptoms of typhoid disappeared in the characteristic manner within two weeks under fluid diet without milk; that the wound discharged pus freely for nearly five weeks after the operation, with frequent retention and septic fever; and at last by the formation of a fecal fistula three weeks after the operation. This, together with the wound, had closed at the end of the seventh week. The boy's appetite had returned two weeks after the operation.

Rectal irrigations, otherwise always used by me in typhoid, were not employed in this case, for obvious reasons.

Judging by the history and the clinical symptoms we may safely surmise that the infection of the appendix occurred during the second week of the typhoid fever.

CASE II.—Albert B., aged ten years, was admitted to St. Francis's Hospital on August 24, 1901. His illness began two days before, with headache, diarrhea, epistaxis and cramp-like pains in the abdomen. The pains remained constant in the right iliac fossa. Epistaxis occurred on two occasions. The diagnosis of appendicitis was made on admission. The patient was operated upon on the same day. A congested and thickened appendix with adhesions was removed. Primary union of the wound resulted.

Five days after the operation the temperature (see Chart no. II.), which had not come down to the normal, slowly began to rise again. During the fourth week I was requested to see the patient in the surgical ward and found evident symptoms of typhoid fever. The Widal test gave positive reaction. Calomel on the first day, then two regular rectal irrigations with three pints of luke-warm water (made without a tube), fluid diet, without milk, and hydrochloric acid before each meal materially assisted the patient to soon overcome the threatening general invasion of the typhoid bacilli.

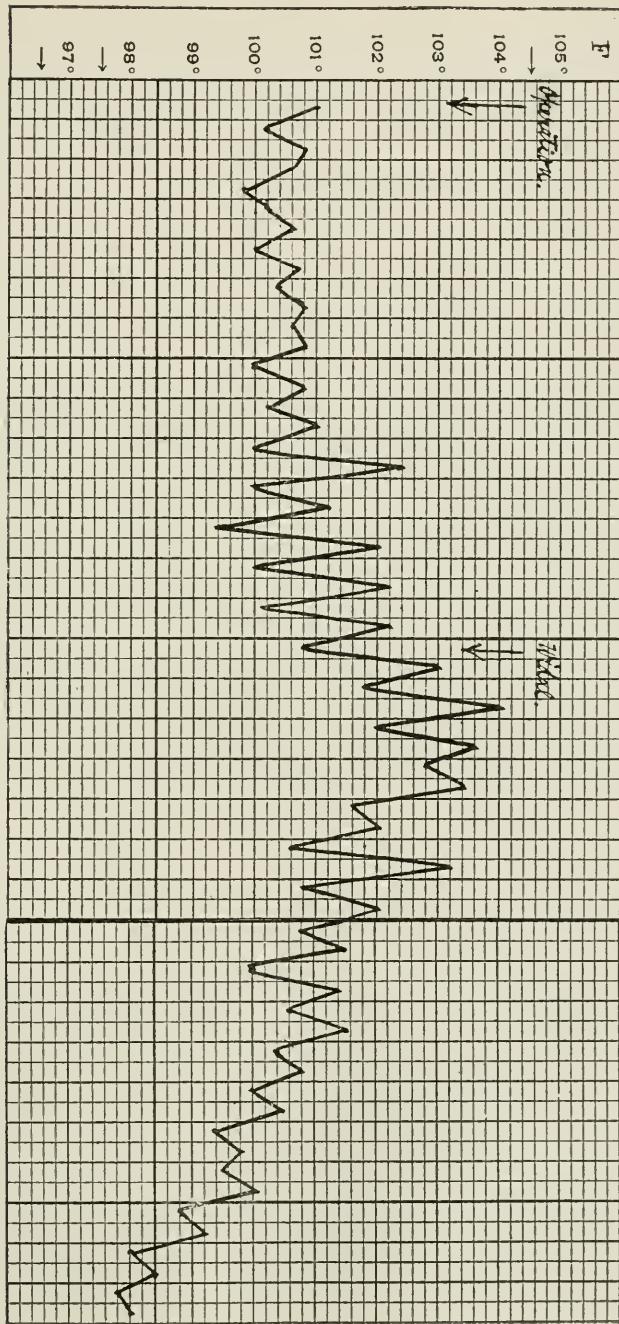


CHART OF CASE II.

In this second case, I believe that the appendix was the first locality in the intestine where the typhoid germs entered the mucosa. The rest in bed and the fluid diet after the operation somewhat retarded the more rapid extension of the typhoid process.

114 EAST FIFTY-SEVENTH STREET.

DISCUSSION.

DR. CAILLÉ.—I have never recognized this combination in the child. We know of its occurrence in adults and I have been much interested in the observation made by Dr. Seibert, and particularly in the diagnostic features of his cases. Appendicitis means an infected appendix and the infection is just as liable to take place from a typhoid gut as from any other.

DR. SEIBERT.—The diagnosis of typhoidal appendicitis is based upon a very high temperature, low pulse and the characteristics of appendicitis, verified by operation, and, with positive Widal reaction. The only question of interest to me was to know how many members of the Society have ever recognized typhoidal appendicitis in a child. We all recognize it in adult life. I said in my paper that these were my first observations, but I think we occasionally overlook this complication, because no doubt the inflammation subsides in most cases before perforation takes place.

Treatment of Croup:—Bayer (*Therapeut. Monat.*, April, 1902) has treated 20 cases of croup without a mishap since he instituted treatment with calomel and apomorphin. He gives 2 cg. of calomel every two hours, alternating it with a teaspoonful of a mixture of apomorphin, 1 cg. in 100 gm. water, with 2 drops of dilute hydrochloric acid and 10 gm. of simple syrup. After the first severe symptoms have subsided he suspends the calomel for a few hours during the day, but keeps it up at night. Even as late as the second or third day, or a little later, the chances are still favorable. Improvement is marked in twelve hours. In three to five days the threatening symptoms subside. Local measures can be omitted.—*Journal of the American Medical Association.*

Occasional Periscope of Teratology.

BY J. W. BALLANTYNE, M.D., F.R.C.P., EDIN.,
Edinburgh, Scotland.

Bilhaut, M. : Genu Recurvatum. (*Annales de Chirurgie et d'Orthopédie*. Vol. xv., No. 129. May, 1902.)

Bilhaut puts on record two of those interesting and rare cases in which the leg is hyperextended upon the thigh. The deformity is sometimes acquired, and is then due to relaxation of the posterior ligament of the knee; it is associated with hip-joint disease, and is perhaps predisposed to by some of the plans of treatment commonly adopted to combat that disease. The congenital variety is very different. In the first of the reported cases the child was born as a head presentation, and after the expulsion of the head the body was driven out in a single pain, so that there was no traction made upon the limbs or indeed any interference at all. Immediately after the birth of the infant, the midwife in attendance noticed that the right knee showed a curious state of flexion forward and exhibited movements of circumduction. On the following day Bilhaut saw the case. The degree of hyperextension of the limb was such that the lines of the axes of the two segments formed an obtuse angle, open to the front and measuring about 130° . The quadriceps femoris, however, was not tense but relaxed, and the patella was difficult to detect; although it was present in front of the knee there was not an eminence but a depression showing a transverse fold of skin. On the posterior surface, on the other hand, the popliteal space was obliterated and replaced by a bony projection constituted by the upper and posterior part of the tibia. No lateral movement of the joint was noted. The leg could be flexed to an angle of 45° on the thigh without the loss of contact of the articular surfaces. It was then a case of congenital genu recurvatum, and not one of congenital dislocation of the knee, for in dislocation there is always a complete or partial loss of contact of the articular surfaces. Treatment was begun at once. The leg was fixed in a splint at an angle of flexion of 45° .

and kept so for fifteen days; then it was fixed afresh at an increased angle of flexion for a second period of fifteen days; and at the end of a third period it was found to be at a right angle with the thigh. At the age of six years the cure was complete. The second case was that of a female, full-time child born as a vertex presentation with no abnormality in the labor. At the time of ligature of the cord it was noted that the right leg was folded upon the front of the thigh. When Bilhaut saw the case the leg formed with the thigh an angle of 140° , open to the front. The features of the deformity were very similar to those of the first case; the treatment adopted was the same; and good progress has been made toward cure, although sufficient time has not yet elapsed for it to be complete. With the help of a radiogram, it was evident that there was no malformation of the joint. Bilhaut had, therefore, to do not with a genu recurvatum formed anatomically by a deformed tibia and a femur whose condyles were markedly modified, but with a case in which the condition was less deep-seated, and was due to a wrong position of the lower limb maintained for a longer or shorter time in utero. He concludes that genu recurvatum is accordingly an easily curable condition; all that is necessary is to keep the limb fixed by a gutta-percha splint in a more and more marked state of flexion. (Bilhaut has been fortunate in his experience of cases of genu recurvatum. In an instance which was brought under my notice some years ago by Dr. Underhill, of Edinburgh, malformations existed, the genu recurvatum was bilateral, and treatment was not followed by cure. In this instance (that of a female infant), the parents were first cousins; the previous confinement had been followed by a bad attack of pelvic inflammation, and the labor had been complicated by oligohydramnion.—*J. W. B.*)

Lannois, M.: Achondroplasic Dwarfs : Brother and Sister.
(*Lyon Médical.* Vol. xciii., No. 893. June 16, 1902.)

Lannois reports two cases of adult achondroplasia, in a brother and sister. Both their parents and their grandparents were of normal height, and the father and mother were not blood relations. The family consisted of seven individuals, four males and three females: in addition to the dwarfed brother and sister, aged respectively twenty-five and twenty-six, there was a brother aged thirty years, who was a giant, and a brother of fourteen and a

sister of twelve who were both very tall for their age. With regard, in the first place, to the dwarfed brother: he was of good intelligence, and his height was three feet eight inches (*circa*); his frontal and parietal eminences were well marked and his head hyperbrachycephalic, the external ears were somewhat deformed; his arms were much shorter than normal, the muscles greatly developed, the bones not curved, the hands thick and broad and showing the malformation "*en trident*"; and the same peculiarities were noted in the lower limbs. He had no beard, but there was an abundance of pubic hair; the penis was well developed, but the testicles were rather small. The dwarfed sister, like her brother, was the product of a pregnancy which was not in any way abnormal. Her height was about three feet three inches, and she was simply a picture of her brother on a slightly smaller scale. She had menstruated since the age of eighteen, always regularly. Skiagrams showed a shortening and thickening of the phalanges and metacarpal and metatarsal bones. There is some doubt from the histories as to whether the dwarfed condition was observable at birth. The thyroid gland in both cases was quite noticeable. The characters of the condition are sufficient to distinguish it both from myxedematous dwarfism and from that due to rickets; the micromelic nature of the dwarfing is specially valuable as a differentiating circumstance, the trunk being normal in conformation and size; the trident-like appearance of the hands is also distinctive. There is no doubt that the cases were instances of achondroplasia. It is striking, and perhaps suggestive, that the two dwarfs were born next in order after a brother so tall as to be almost a giant.

Baudouin, Marcel : Surgery of Double Monsters. (*Revue de Chirurgie.* Vol. xxii., No. 513. May, 1902.)

Baudouin has a long and very interesting article upon the history of attempts at the surgical separation of conjoined twins. The subject is much before the profession and (alas!) the public also at the present time in connection with the reported cases of Chapot-Prévost, of Brazil, and Doyen, of Paris. It is to some extent matter for regret that, with all the noteworthy advances in the technique of modern surgery, so little has been attempted to fit the individuals structurally united in the manner of the Siamese twins for a more useful sphere in life than that which is limited

by the walls of an exhibition or show. It is not that propositions have been wanting, for so long ago as 1100 (in the case of the Biddenden Maids) it seems to have been suggested that when one twin died the other should have been cut away from her; and there are a few records in which, for various reasons, but chiefly on account of the death of one of the twins, an attempt was made to separate united twins. Of course all double monsters are not equally separable: those, for instance, in which there is one head and two bodies, or one body and two heads, may be regarded as quite inoperable, while those in which there are two well-formed individuals joined together only by a thin band uniting together the two thoraces, abdomens, or pelvis, must, in the light of the achievements of aseptic surgery, be looked upon as quite operable. In the cases reported by Koenig (1690) and by Boehm (1860) the union was by a thin band (containing no liver tissue) stretching between the ensiform cartilages. In the former instance it is said that both twins survived; in the latter only one lived. In the case reported by Biaudet and Bugnion (1881) there was a bridge of hepatic tissue, and both the twins died from hemorrhage from the liver and sepsis. In the recent operations of Doyen (on Radica-Doodica) and Chapot-Prévost (on Maria-Rosalina) special means were employed to control the hepatic hemorrhage and to ensure asepsis. In the former case operative interference was decided upon on account of abdominal tuberculosis of one of the sisters (Doodica) and this one succumbed, while the other (Radica) survived; in the latter case the operation also proved fatal to one of the sisters on the sixth day. The cases referred to in which operative interference has been carried out were all examples of anterior union (xiphopagous and thoracopagous twins); but, as Baudouin points out, there is no reason why surgery should not look forward to operating upon other types of double terata. In the rare cases, for instance, in which the infants are joined by the heads (metopagous and cephalopagous) it ought not to be impossible to separate the two, and with this opinion Chapot-Prévost concurs; it is noteworthy that Munster's unsuccessful operation (1495) was carried out upon metopagous twins, one of whom was already dead. In pygopagous twins there seems to have been only one attempt made at separation, that reported by Treyling in 1700; it ended in the death of both children. In such cases one would have to face the difficulty of dealing with a single urethra and two bladders, a single rectum, fused sacra,

etc. The degree of fusion in ischiopagous twins is apparently so great as to preclude all hope of safe separation. There are yet many matters to be decided regarding the indications for and operative procedures to be employed in the separation of united twins; in the meantime, it cannot be said that surgical opinion has at all crystallized. One matter about which there is sure to be discussion is the best age for operation. Apparently Doyen favors waiting, and states that if it had not been for the dangerous condition of Doodica he would have preferred to postpone the operation for some years; but it is noteworthy that Chapot-Prévost's operation was performed when the twins (Maria-Rosalina) were only seven years old, and Koenig and Boehm operated soon after birth. Baudouin in bringing to a close his valuable contribution laments that there is in Paris no Professorship of Teratology and no laboratory. (These, however, may yet come in this commencing twentieth century.—*J. W. B.*)

de Ribes Champetier and Constantin-Daniel : Achondroplasia. (*Bull. et Mem. Soc. Anat. de Paris.* 6s. Vol. iv., No. 90. 1902.)

The authors describe a case of achondroplasia in a premature (seven and one-half months) infant. There were all the typical features of this malformation, including the marked shortening of the limbs in contrast with the normal dimensions of the trunk. The child was born as a breech presentation. While the obstetrician was extracting the aftercoming head by means of the Mauriceau maneuver and making no strong efforts at traction the cranial vault gave way, allowing the escape of the cerebral hemispheres. Evidently, therefore, the ossification of the cranial vault bones must have been very defective.

Malatesta, L. : Phocomely. (*La Clinica Ostetrica.* Vol. iv., No. 183. May, 1902.)

Malatesta was called to a case of labor in which the presentation was transverse, position dorsoanterior, right cephaloiliac. The membranes had ruptured three hours previously. In endeavoring to perform internal version, Malatesta was surprised to find that the foot which he got hold of was apparently attached directly to the acetabular cavity. So stunted were the lower extremities that he had great difficulty in performing version; and,

alarming hemorrhage coming on, he applied forceps and delivered by their help. The fetus, a female, was born dead. It had a large head and trunk, but rudimentary limbs. The digits, the tarsus and metatarsus, and the carpus and metacarpus were normally shaped, although somewhat smaller than usual; but the tibia and femur, as well as the humerus and radius and ulna, were so rudimentary that the feet and hands looked as if they sprang immediately from the acetabular and glenoid cavities respectively. It was, therefore, a case of phocomely, or, as the author terms it, of micromely. (A case very similar to the above is figured in my work, "A Manual of Antenatal Pathology," Fig. 51, p. 351.—*J. W. B.*)

Inflammation of the Labyrinth in Mumps.—Texier (*Revue Hebdomadaire de Laryngologie*, June 7, 1902) states that 34 cases of deafness sequent to mumps have been published. About half this number were bilateral. The deafness commenced suddenly and was generally complete from the first. It accompanied the swelling of the glands or preceded it, and even occurred in some cases without tumefaction of the glands on the same side. It is persistent, and, except the very rare cases in which improvement was noted, has been incurable. The buzzing in the ears that accompanies it is described as resembling the soughing of the wind in the leaves or the sound of the sea. These subjective sounds were generally persistent and aggravated by noise. In 2 cases personally observed, these symptoms were accompanied by vertigo and vomiting. The vertigo recurred at every abrupt movement for a month in one patient and during three or four days in the other. The deafness was bilateral and complete in the latter. The patients were both young men. Vertigo was observed in 13 of the 32 cases published, but lasted only a few hours or days in most. Vomiting accompanied it in 4 cases. May believes that the deafness attacks by preference those who have had some slight previous lesion of the ears. The symptoms observed suggest Menière's disease. No lesions can be discovered in the other parts of the ear. This labyrinthitis should be grouped with the rarer complications of mumps, such as prostatitis, mammitis, ovaritis and cerebral and ocular affections.—*Journal of the American Medical Association,*

ARCHIVES OF PEDIATRICS.

SEPTEMBER, 1902.

EDITED BY

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

PET ANIMALS AND CHILDREN'S DISEASES.

It is wise to keep in the minds of guardians of children the possibilities there are for infection taking place from the animals with which children are allowed to play. It is generally conceded that the domestic cat may be the bearer of diphtheria and scarlet fever, and probably also of some other of the infectious fevers commonly known as children's diseases. From certain of these diseases, as diphtheria and scarlet fever, the cat may suffer *in propria persona*. Even though cats are perfectly well, they may carry infectious materials on their fur, acquired from contact with the animals from infected houses. It is an important direction in case of contagious illness in a family, to

forbid the entrance of the cat into the sick room, for its snuggling habits may make its fur very favorable fomites of the disease. This is a matter often absolutely unthought of by the family and neglected by the medical attendant, though many other less necessary precautions for the protection of neighboring families are cheerfully and faithfully taken.

The supposedly harmless dog is scarcely less dangerous as a possible carrier of infection than the cat. Diphtheria has been transferred from house to house by this means, and probably also scarlatina, measles and whooping-cough. There is a tradition in certain parts of Europe that this last disease is frequently conveyed in this way. Dogs used to be considered immune to tuberculosis. At one time, because of this presumed immunity, it was even suggested that canine blood serum should be used as a therapeutic remedy for the cure of human tuberculosis. About four years ago, however, the distinguished French bacteriologist, Nocard, whose work in veterinary medicine at Alfort has given him a world-wide reputation, showed that many dogs suffer from tuberculosis. The lesions are not always in the lungs. Not infrequently there are tuberculous sinuses extending from certain of the bones of the face into the nose. In these cases the tubercle bacilli swarm in the nasal discharge. Now that we no longer credit Koch's declaration of the absolute distinction of tubercle bacilli for various animals—and Behring and Ravenel have shown that the old idea of the inter-communicability of human and animal tuberculosis is the only safe opinion as a working basis for prophylaxis—these facts should make us wary of too free contact of dogs with children, especially in families of known tuberculous predisposition.

The dog is the host of the adult form of the *cysticercus cellulosae*—the familiar hydatid cysts which statistics show are growing to be more common throughout the civilized world. It is from the domesticated animal afflicted with the tape-worm form

of the parasite that the eggs come which, having gained an entrance into the intestinal tract of human beings, find their way in the intermediate cystic stage into almost any of the human tissues. Hydatid cysts are especially common among the Icelanders, who live on very intimate terms with their dogs, not infrequently permitting the animals to share their beds in the winter time.

The cause of ozena is as yet undecided. Many bacteria have been found, but none of them are surely pathogenic for the affection. Perez, in the May number of the *Annals of the Institute Pasteur* (of Paris), for 1891 advances the claim that the bacillus which causes the disease comes from the dog. He has shown that a bacillus can be found in the nasal discharges of ozenic patients which resembles a microbe found in most dogs. He was able to trace the history of patients afflicted with ozena, and found that many of them had habits of familiarity with dogs that made them especially liable to contract the disease, if it is really of canine origin.

The uncleanly habits of the dog in turning over every kind of animal material with its nose makes it eminently undesirable that it should ever be allowed to lick the face or hands. This is particularly true for little children, who are so much more susceptible to infections of various kinds. There are, especially in city life, almost endless possibilities for dogs having on their noses the ova of various intestinal parasites and many forms of intestinal bacteria that are contained in the dejecta of animals encountered on the street. If we are insisting on special precautions with regard to food contamination by flies because of the habits of these domestic pests with regard to excrementitious material, it is almost more important that dogs should not be allowed to become distributors in the household of at least as dangerous material in considerably larger quantities.

Besides cats and dogs, birds constitute the third class of animals with which children are likely to be intimately in contact.

Parrots are often fondled and allowed familiarities that may lead to the spread of disease, though in this case, as a rule, only if the bird itself is affected. Parrots and other domesticated birds quite often die of tuberculosis. The discussion as to the identity of avian and human tuberculosis is not yet definitely settled. Nocard's work on the subject at Alfort, published some two years ago, seemed to show that the diseases were at least closely related. It has been noted that chickens kept near sanitaria for the treatment of tuberculosis suffer more frequently from avian tuberculosis than do fowls under other circumstances and especially if the restrictions with regard to expectoration are relaxed when the patients are outside the institution. Parrots suffer from a specific disease called psittacosis (from the Greek name for the bird) which is intensely contagious for human beings. It was first noticed in Paris in 1897, when an epidemic of over fifty cases of the disease was observed. Over one-half of the cases proved fatal to the persons afflicted, and the original contagion was in every case traced to a shipload of parrots recently introduced into the city, many of the birds having the signs of the disease when brought in.

It is evident then that there is need of greater care than is at present exercised in order to protect children from the dangers of infections carried by animals. Very special precautions are needed whenever animals are ailing. It is advisable that in households where there are several children, sick animals should not be treated at home, but should be transferred to a veterinary's care. Animals should be kept out of sick rooms and in times of epidemics should not be allowed to wander from house to house. Dogs, after having been taken for walks on crowded streets, should be carefully washed before being allowed to associate with young children. It would seem advisable too to limit the play of children with pet animals more than is at present the custom. The whole subject is worthy of the most careful attention.

Bibliography.

The Artificial Feeding of Infants, Including a Critical Review of the Recent Literature of the Subject. By Charles F. Judson, M.D., Physician to the Medical Dispensary of the Children's Hospital, and J. Claxton Gittings, M.D., Assistant Physician to the Medical Dispensary of the Children's Hospital, Philadelphia. J. B. Lippincott Company. 1902. Pp. 368. Price, \$2.00.

In the preface the authors state that their aim is to place before the medical profession a thorough and reliable account of the principles and methods of artificial feeding in vogue at the present day.

They begin the book with an historical survey of the publications relating to infant feeding as far back as the middle of the eighteenth century. Following this review there are chapters on mother's milk, cow's milk, digestion, modern methods of infant feeding, weaning, care of milk, bacteriology of milk, sterilization and pastuerization, weight and growth and the feeding of premature infants.

Three chapters on the principles of infant feeding, methods for the home modification of milk and practical rules for feeding are the only attempt that the authors make to place the writings of laboratory workers and clinicians in a form that will make a practical exposition. The earlier writers were empirical while some of the later ones are ultrascientific. The quotations made do not show a unanimity of opinion but it is by such comparison that advance is made. A chapter on artifical foods, from Cautley's report, an appendix and a bibliography complete this satisfactory volume.

The book is not one for medical students and it will not light the path of physicians who "feed the baby anything that agrees with it," but for those who wish to clarify their knowledge of infant feeding by a comparison of data this volume offers more than has heretofore been published in any text book. A few errors in names need correction but the book is unusually free from mistakes.

Society Reports.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—LONDON.

Meeting of May 16th, at the North Eastern Hospital for Children, Shoreditch, London.

DR. W. A. WILLS, CHAIRMAN.

DR. JAMES TAYLOR showed 2 cases (1),

A CASE OF PAROXYSMAL HEMOGLOBINURIA

in a child of eight years. There was no sign of congenital syphilis until a year after she came under observation, when she had syphilitic ulceration of the palate, which resulted in destruction of the uvula; (2)

A CASE OF RAYNAUD'S DISEASE

in a boy of five years, who had lost the terminal phalanges of several fingers. Oxalates abounded in the urine.

MR. HERBERT CARRE-SMITH showed a

CASE OF SPORADIC CRETINISM

in a patient of nearly twelve years of age, who had been under treatment for four years with thyroid extract and had considerably improved both mentally and physically. She was taking seven and a half grains of thyroid extract and he proposed to increase the quantity to ten grains a day. The patient deteriorated mentally when the medicine was discontinued and increased in size and weight.

DR. G. A. SHUTTLEWORTH recommended perseverance in the treatment with thyroid.

DR. EDMUND CAUTLEY asked whether the thyroid gland altered when treatment was stopped.

THE CHAIRMAN remarked upon the large doses that could be taken by such patients.

MR. CARRE-SMITH, in reply, said the thyroid gland had shown

no very obvious changes, at any rate, since it had been under his direct observation during the last three years.

DR. A. BRUCE ROXBURGH showed a child, aged two years and two months, with a

FATTY GROWTH OCCUPYING THE LEFT SIDE OF THE PERINEUM
AND SCROTUM;

the testicle was situated in the perineum and a hydrocele of the tunica vaginalis was present. The enlargement was noticed a few months after birth, but had not increased in size. He also showed a female, aged five years, presenting

VARICOSITY OF THE VEINS OF THE LEFT LOWER EXTREMITY with an extensive nevus of the cavernous type on the outer side of the knee. A radiograph showed slight alterations in the length and shape of the tibia on the affected side.

DR. PARKES WEBER considered the case very interesting, appearing so early in life. The presence of tumor formation gave one the explanation of the resemblance between nevoid tumor formation and the occurrence of varicose veins.

MR. CLEMENT LUCAS saw no reason why the tumor should not be excised, together with a large amount of cellular tissue.

DR. PORTER PARKINSON showed two children of the same family with a curious

CONGENITAL DEPRESSION OF THE FRONTAL AND PARIETAL BONES on the right side of the cranium. A third child (deceased) had the same asymmetry; the father also and his mother have precisely the same shape of head, according to the mother. The children were intelligent and had had no fits or other cerebral troubles, and were well-formed in all other ways.

DR. CLAPHAM mentioned a case which he had shown before the Clinical Society of London last year. In his case the hands were deformed and "dead" and there was an absence of the right ulna.

MR. DOUGLAS DREW showed several cases illustrating the treatment of

SECONDARY CONDITIONS ARISING AFTER OPERATIONS FOR TUBEROUS JOINTS.

MR. SYDNEY STEPHENSON showed a

CASE OF KERATOMALACIA

in an emaciated infant of seven months, suffering from tuber-

culosis probably of the disseminated variety. One eye was completely lost by the disease : the other had healed, leaving a nebula.

DR. EDMUND CAUTLEY remarked that the temperature chart was not like that of tuberculosis. He enquired whether the gonococcus could be excluded as a factor in the case.

MR. STEPHENSON, in reply, said there had been no ophthalmia neonatorum : the symptoms did not begin until the third month and were those of keratitis and not of conjunctivitis. The latter, indeed, had been absent throughout the case. Clinically, at all events, the gonococcus could be put aside.

MR. WALTER EDMUNDS exhibited a girl, four years of age, with

SUB-LUXATION OF THE SHOULDER-JOINT,

which he regarded as an after effect of epiphysitis, for which she was treated as a baby of about six weeks of age. The arm was perfectly useful and could be moved in any direction but upwards; she was unable to lift it about the level of the shoulder when drilling.

MR. E. W. CLAPHAM mentioned another case of the same kind in a healthy man.

MR. H. BETHAM ROBINSON showed a

CASE OF SPRINGEL'S DEFORMITY

in a girl of eleven years, who had always had good health ; the deformity had been noticed only two months. In the erect position the right shoulder was considerably raised. The inferior angle of the scapula was one and one-half inches above the other side and rather nearer the middle line ; the superior angle was a greater distance and could be felt under the muscles enlarged. Some lateral curvation of the spine.

DR. TRAVERS SMITH alluded to case shown by him at the Poly-clinic. Springel's theory was, that in utero the arm got behind the back and the shoulder was raised, thus bringing about the deformity.

DR. JAMES H. LEQUEIRA exhibited a

LARGE SARCOMATOUS TUMOR OF THE LEFT SUPRARENAL

body from a girl of eleven years, who showed the phenomena of

"precocious puberty." The patient had menstruated for over a year, the mammae were very large and there was considerable growth of hair on the pubes, chin and lips. Secondary deposits were present in the lungs and liver.

DR. PORTER PARKINSON showed an organized

INTRACARDIAC THROMBUS

from a boy, aged eight years.

MR. DOUGLAS DREW exhibited a specimen and sections of an

ADENOMYXOSARCOMA OF THE TESTIS

taken from an infant.

DR. C. O. HAWTHORNE read a note on a case of

ARTHRITIS WITH OPHTHALMIA NEONATORUM.

After referring to the original observation of the association of the two conditions, made by Mr. R. Clement Lucas in 1885, and to subsequent experiences in confirmation of this Mr. Hawthorne described a case in an infant, when purulent ophthalmia was accompanied by effusion into several joints and by some periarticular swelling. Under treatment the affected joints regained their normal condition.

MR. R. CLEMENT LUCAS said it was pleasant to find that a clinical observation, made almost in the pre-bacteriological days, had been so amply confirmed. His first case was so acute that it appeared as if the joint must suppurate, but it did not. He had also met with the subacute as described by Dr. Hawthorne. The peculiarities of the affection were the tendency to recover without suppuration and the association of suppuration in the conjunctiva.

MR. SYDNEY STEPHENSON remarked that it was a pity gonococci had not been demonstrated in the eye-discharge from Dr. Hawthorne's patient, but the other circumstances of the case rendered the existence of gonorrhea quite conclusive. He had personally seen 5 cases of "Lucas joint" disease, as it might be termed, 4 of which made a perfect recovery under simple treatment. In the sixth the joint aspirated and ultimately became ankylosed. Dr. Hawthorne, in reply, agreed that an examination for gonococci should have been made.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated meeting, Tuesday, May 13, 1902.

DR. SAMUEL MCCLINTOCK HAMILL, PRESIDENT.

DR. ALEXANDER H. DAVISSON showed

A CASE OF CRETINISM

that had been exhibited to the Society the year before. He also showed photographs taken at the previous time, before treatment was begun. The child had been thought by the mother to be perfectly well until four months old, after which its health seemed rather indefinitely poor, and the mother noticed that the tongue was thick. When first seen, the child presented the evidences of rickets and marked signs of cretinism. It was given thyroid extract, beginning with gr. $\frac{1}{4}$ t.i.d. During the year, it had passed through a very severe attack of measles and prolonged digestive disturbance, associated with severe prolapse of the bowel; and during the hot weather it nearly died. As exhibited the last time, however, it seemed in good general condition. Its expression was bright and cheerful, while it had previously been typically cretinoid. Its hair had grown soft and curly, its skin was no longer dry or rough, and the color was more normal. The voice was softer, the mouth was no longer held open, and the tongue was not abnormally thick. The fatty deposits about the clavicles had disappeared. It had gained seven and one-half pounds and had grown three and one quarter inches in height, the circumference of the head was an inch greater, and the child had got all of its teeth. It still exhibited the remnants of rickets and had not entirely lost its cretinoid appearance, but was strikingly improved.

DR. DAVISSON also exhibited a case of

PARAPLEGIA IN AN INFANT THREE MONTHS OF AGE.

The child was born in a breech presentation; and considerable traction had to be made upon the legs, in order to effect delivery. The child presented a flaccid paralysis of the lower limbs; the abdomen was flaccid, and sank at each side; and there were no contractions of the abdominal muscles. At regular intervals, corresponding to the respiration, there was a striking sinking-in of

the chest muscles on the sides, at about the region of the diaphragm. The bowels could be moved only by enema. The distended bladder could be palpated; and pressure caused a flow of urine—an incontinence of retention. The knee-jerks, the plantar reflex, and the abdominal skin reflexes were all absent. Anesthesia extended to the xiphoid anteriorly, and above the second dorsal vertebra posteriorly. The pupils reacted freely to light. There was no cranial nerve palsy, and examination had shown no spinal bone lesions. The feet were warm, and there was no atrophy of the legs or thighs. The diagnosis was thought to be a transverse myelitis between the second and third dorsal segments. The breech presentation and delivery by the feet was considered to have been connected with the production of the condition.

DR. J. P. CROZER GRIFFITH said that he had seen the last case at the Dispensary of the Children's Hospital, and that the condition was certainly a most remarkable one. In a fairly careful watching of pediatric-journal literature for a number of years, he had observed reported no instance at all analogous to it; and there seems to be little reference to it in text-books. Paralysis of the upper extremities, due to injury at birth, is not uncommon; but that of the lower, appears to be rare. He was struck by the curious sinking-in of the costal margin, together with the entirely passive state of the abdomen during respiration and the active movement of the upper part of the chest. It gave the impression, at first, that the diaphragm was paralyzed; but this was certainly not the case, because the lesion in the cord was clearly too low to have involved this muscle, which is innervated from the fourth cervical segment. The condition was probably due to the lack of tonicity of the abdominal walls, on account of which there was a failure of proper support to the upper portion of the trunk.

In connection with the absence of knee-jerks, Dr. Griffith referred to a paper by Dr. Walton, of Boston. This writer refers to the fact that in complete destruction of a portion of the cord, as in cases of fracture of the spine, the reflexes may be entirely lost, instead of increased, as generally occurs in injury or inflammation—such, for instance, as is so generally exemplified in Pott's disease and the like. In cases of paraplegia of the new-born, it appeared that the cause was most often hemorrhage into the spinal canal, at least, this seemed to be the statement in text-books.

He regarded the prognosis in the case exhibited as very bad. It was hardly possible that the child could live long. Any intercurrent disease, especially of the respiratory tract, would be likely to prove fatal.

DR. ESHNER said that, in a considerable experience at the Orthopedic Hospital, he did not recall having seen a case resembling this; and that the condition must be very rare. He agreed with Dr. Griffith in thinking that the lesion was probably hemorrhage into the spinal cord or its membranes. An analogy might be drawn with the cerebral palsies seen in the new-born after difficult labor.

In connection with the case of cretinism, Dr. Eshner referred to his having seen perhaps a dozen or more cases of this disorder at the Orthopedic Hospital, in the course of some nine years, and stated that they exhibited a tendency to go backward, if the administration of thyroid was stopped. Therefore, thyroid gland has to be administered continually in these cases; and the speaker had grown to believe that it is preferable to use small doses over long periods, rather than large doses over shorter periods. Large doses cannot be administered long because of the occurrence of toxic symptoms.

DR. W. REYNOLDS WILSON, in connection with the case of paraplegia, referred to the fact that recent opinion tends to the view that there is little danger of dislocation of the vertebrae, in contradistinction to fracture of the body of the individual bones, during delivery. The chief danger lies in fracture; hence, dislocation was not the probability in this case, and the condition was probably one of hemorrhage, either with or without fracture.

DR. PACKARD showed a case of

ENLARGEMENT OF THE LIVER AND SPLEEN

in a congenital syphilitic. The child had been repeatedly admitted to the Pennsylvania Hospital for acute attacks of tonsillar infection. The facies was typically syphilitic, the bridge of the nose was sunken and broadened, and there was eczema; but there was no interstitial keratitis, and "Hutchinson's teeth" were not present. The spleen extended almost to the middle line, and the edge of the liver was felt at the umbilical level. Just beneath the ribs, there was a broad prominence on the surface of the liver, possibly due to the presence of a gumma. The history threw no light upon the question as to whether the disease was congenital or accidentally acquired.

DR. EDSALL referred to a case which he had reported to the Society about a year and a half before. That child was also a girl of fourteen who had signs of congenital syphilis, with great enlargement of the liver, and with evidences of splenic and renal amyloid disease. The child certainly had gummata of the liver. One mass, in the lower part of the right lobe of the liver, was as large as the half of a small orange; it was very rough and hard, and extremely tender. There was a smaller mass, about the size of an English walnut, in the epigastrium, apparently in the left lobe of the liver. The masses were similar to those seen in large cancerous metastases in adults, and the patient was sent to St. Christopher's Hospital with the diagnosis of malignant growths of the liver. These masses disappeared with the utmost rapidity, under the energetic use of specific treatment; and within three or four weeks, they had decreased to the size of small nodules. After continued treatment, the surface of the liver became practically smooth; and the liver and spleen ultimately decreased in size, until nothing abnormal could be determined in either organ. The albumin and casts in the urine, however, persisted; and the child had a constant tendency to the return of edema, although she seemed otherwise to be in good condition.

DR. HAMILL showed

SPECIMENS FROM A CASE OF HEART DISEASE WITH ENLARGED SPLEEN.

The specimens were removed from a boy aged nine years. The patient had been under Dr. Hamill's care for a year and a half. He had had chickenpox, measles and pneumonia prior to this time. He was first seen in an attack of chorea.

An examination of the heart at this time showed a systolic apex murmur without cardiac enlargement. Six months later he returned to the dispensary with a mild attack of acute articular rheumatism. A physical examination at this time showed the heart enlarged, and a pre-systolic murmur added to the systolic murmur at the apex. Six months later he returned to the dispensary with a decided increase in the size of his heart; the same murmurs present and marked evidences of failing compensation.

An examination of the abdomen at this time showed a very great enlargement of the spleen.

Several blood examinations were made for the malarial or-

ganism with negative results. The blood count showed nothing abnormal. The patient never had any elevation of temperature. He was in good physical condition until within a few moments of his death, when he complained of vertigo, became unconscious, and died a few moments later.

The autopsy showed a very much enlarged spleen, which on section showed numerous small, white, roundish spots about the size of a millet seed, resembling miliary tubercles. The liver was very much enlarged. The heart was decidedly and generally enlarged. On opening the heart the only valvular lesion found involved the mitral valves; this orifice was reduced in size. The valves were infiltrated and had some vegetations adhering to them; some of the chordæ-tendineaæ were destroyed, and adherent to their free ends were small vegetations.

There was a large area of inflammatory thickening in the posterior wall of the auricle and adjacent to the valves. The vegetations on the valves were examined for microorganism with negative result.

The microscopical examination of the spleen and enlarged lymph nodes showed a marked proliferation of the malpighian corpuscles and the lymph follicles.

DR. GRIFFITH asked how Dr. Hamill accounted for the sudden death.

DR. MILLER said that there seemed to be but little right-sided enlargement of the heart, and that the obstruction had apparently been of but short duration.

DR. HAMILL replied that the sudden death was probably due to cerebral embolism. There were some very loose vegetations on the valves, and embolism might readily have occurred. He also noted that the mass on the valves had been stained for microorganisms with negative results. The obstruction had certainly been of recent development. When first seen, the child had regurgitation; and the signs of obstruction had developed while under observation. There was very little post mortem evidence of enlargement of the right ventricle; and, indeed, only slight enlargement of the left auricle.

DR. HAND read a paper on the

POSITIVE DIAGNOSIS OF MENINGITIS, PARTICULARLY TUBERCULOUS,
BY LUMBAR PUNCTURE.

He referred to the difficulty often met with in the diagnosis of meningitis, not only when meningeal symptoms occur in the

course of infectious diseases, but also when they are part of an illness obscure in nature. When the clinical existence of meningitis is clear, a second difficulty arises with regard to the variety, upon which the prognosis largely depends. Inflammation of the meninges always alters the character of the cerebrospinal fluid, the resulting changes being diminution or absence of sugar, increase of albumin, and—except in simple serous meningitis—the presence of leukocytes, bacteria, and frequently endothelial cells. The variety of leukocytes present has often been referred to as of great diagnostic value, by some observers; an excess of leukocytes indicating a tuberculous process, while polynuclear leukocytes are in the majority in other forms. Some have been unable to determine this. The writer's own experience is that in some fields of a given slide a differential count is often difficult or impossible owing to evident distortion of the cells during the process of mounting; but that where the handling has been very careful and the nuclei are distinct, a differential count is of value. It does not, however, have the positive value that the finding of specific germs does; and positive conclusions can be drawn only from positive results. In thirty specimens of cerebrospinal fluid examined, twenty-one contained tubercle bacilli. The other cases comprised one of cerebrospinal fever followed by recovery, 2 cases of pneumococcic meningitis, 1 of serous meningitis, 1 of normal fluid, and 1 of suspected brain-tumor, the 3 remaining being meningitis of undetermined origin—probably septic, the clinical course not indicating tuberculosis. The estimation of sugar has some value, as a small amount had been found in the serous meningitis and in those cases of tuberculous meningitis tested with phenylhydrazin, the other cases of meningitis not responding to that test. Fehling's solution does not seem delicate enough for the amount of fluid at the disposal of the examiner. Differential counts in the tuberculous cases showed all of them to have an excess of lymphocytes; while the other cases, except the serous, the normal, and the brain-tumor cases, gave an excess of polynuclears, the exceptions having no cellular elements. The percentages of lymphocytes in the tuberculous cases ranged from a minimum of 65 per cent. to a maximum of 99.4 per cent., without any marked features in the course to explain this range.

The technic of the examination is of the highest importance, that used by the writer being the following: The fluid should be collected in a sterile test-tube plugged with cotton, and allowed

to stand until a strand of fibrin has formed; this usually forms in from two to six hours, and settles in the bottom. A straight platinum needle—not a loop—is touched to one edge of the fibrin, which is then transferred to a slide, care being taken to tip the test-tube so that the fibrin constantly floats in fluid. The excess of fluid is then drained off from the slide, and the remainder evaporated by gentle heat; it being not only unnecessary, but usually fatal to the success of the examination, to press the fibrin between two slides. The film is fixed by heat, stained in the usual manner, and then carefully gone over with a mechanical stage. Since adopting this method, the writer believes he has been successful in 100 per cent. of the tuberculous cases.

DR. PACKARD said that in a fair experience with lumbar puncture, he had seen but 3 or 4 cases in which fluid could not be obtained, although there was no doubt that the needle had entered the dural cavity. In 1 case, autopsy, performed later on the same day, showed that the reason for the negative result of the pressure was the fact that there was no excess of fluid in the canal, but that the whole pia mater was covered by an exudation of lymph. This patient died of epidemic cerebrospinal meningitis. In some cases therefore, the failure to obtain fluid may be due to the character of the exudate. The speaker believed that lumbar puncture was not only of diagnostic value, but was also a good therapeutic measure. He mentioned 2 cases in which most striking improvement occurred at once, upon the removal of a small quantity of fluid. He had seen no harm result in any case, but in several cases had seen Cheyne-Stokes' breathing and convulsive movements stop upon the withdrawal of fluid. He believes that sometimes it certainly does good; and that in some instances it may at least hasten recovery, and perhaps determine its occurrence.

DR. J. GRIFFITH said that he thought that the puncture of the spinal cord, especially in cases of tumor of the brain, could do harm in only one way. Where there was some tendency to opisthotonus or semi-voluntary resistance on the part of the child, a good deal of force might be required to bend and hold the subject in the proper position to allow of easy puncture. The struggles which might ensue could readily exhaust the strength of a child in a dangerously low condition. He had seen this result in 1 case in the Children's Hospital, in which powerful hypodermic stimulation was required to overcome the exhaustion.

With regard to the relief which the procedure might give, he could by no means count upon this. He had repeatedly seen temporary improvement follow. In the case to which he referred, the condition was distinctly better after the exhaustion had disappeared. In another case, the first tapping produced pronounced relief; the child, who had been lying unconscious and speechless, uttered its mother's name shortly afterwards. A second tapping, in this same case, brought back to the patient the power to swallow, which had been entirely lost. A third tapping, however, did no good at all. In another case, apparently one of chronic meningitis, in which the fluid showed absolutely nothing and in which the child exhibited convulsions almost constantly, day after day, this symptom invariably ceased after puncture was performed, and continued absent for a considerable time.

It was, doubtless, by relief of the pressure that the operation did good. We might, however, reach the spinal canal without relieving the pressure on the brain. This was probably due to the blocking up of the connection between the two, by plastic exudate. In some of the cases that he had operated upon, the early punctures relieved; whereas, later ones failed. In 1 case, the fluid escaped under such pressure that it spurted strongly up Dr. Griffith's arm; yet the child showed no improvement whatever.

Dr. Griffith believed, however, that there was no question that the effort should be made, in every case, to give the child at least temporary relief, by doing a lumbar puncture. Permanent relief, he had not yet seen, although such cases were on record.

DR. WESTCOTT believed that we should pay more attention to the importance of the findings in the fluid, in their relation to prognosis. It is perfectly well established that a definite prognosis in meningitis can be better established by determining the nature of the organism causing the disease than in any other way. If it is found to be tuberculous, the prognosis, of course, is practically fatal. Dr. Hand had referred to cases in which tubercle bacilli had been found, and which had been reported as having recovered; but Dr. Westcott directed attention to the fact that there had been no reports of the subsequent course of these cases. While we may admit the fact that patients occasionally may apparently recover from an attack of proven tuberculous meningitis, there is a great probability that the recovery in such

cases is only temporary. Certainly the prognosis in tuberculous meningitis may be stated, in general, to be absolutely bad. That in influenza meningitis is, on the contrary, usually favorable. In pneumococcus meningitis, on the other hand, the prognosis is stated by Councilman to be almost certainly fatal. These facts are examples of the difference in the prognosis when the condition is caused by different organisms. It would seem to be very important to make cultures of the spinal fluid from every case of meningitis coming under our care; so that reliable data as to prognosis may be obtained, and definite conclusions based upon observations in a large number of cases reached.

DR. D. J. M. MILLER asked Dr. Hand whether absolute clearness of the fluid is incompatible with the presence of a tuberculous meningitis. By clearness, he meant a perfectly watery appearance. He had found lumbar puncture most valuable in excluding meningitis. His experience had been chiefly in adults, and particularly in those cases of meningismus which are observed in pneumonia, typhoid fever, and the like. In these cases, the negative result of a puncture is often a most important aid in reaching a conclusion as to diagnosis and prognosis.

DR. MYER SOLIS COHEN referred to a case of dermatitis gangrenosa which he had seen while a resident physician in the Philadelphia Hospital. Lumbar puncture had been carried out in this case; and it was noted that after the fluid had been kept for about three days, it had turned green. At the time, this was thought to be due to an atmospheric infection; but the child died, and autopsy showed a general infection with the pyocyaneus.

DR. EDSALL asked Dr. Hand whether he would positively state his ideas concerning the value of the cytodiagnosis of meningitis—as to whether he thought it definitely possible to distinguish between tuberculous and nontuberculous meningitis by the character of the cells present. A number of authors make the absolute statement that the diagnosis can be positively made in this way; others state that this is not possible—Bendix, for instance, refers to 1 case which was positively determined to be nontuberculous meningitis, in which the cells were chiefly lymphocytes. The latter is inclined to consider that the presence of large numbers of lymphocytes in the exudate is chiefly dependent upon the chronicity of the process; or, in other words, upon the lack of acute activity in the inflammatory process; and Patella believes the so-called lymphocytes in pleural effusions to be merely altered

endothelial cells. Whether this is true or not, Dr. Edsall considered that an absolute diagnosis cannot be made in this way. Other serous exudates—those in the pleura, for instance—at times contain a majority of lymphocytes when tuberculosis is absent. There has been a good deal of discussion about the positive diagnosis of tuberculosis from a study of the circulating blood, which, of course, has ended in the decision that such a method is entirely impracticable. It would seem probable that it would also be impracticable to make an absolute diagnosis from a study of the cells in the exudate; although there certainly are comparatively few conditions which would be likely to provide the same microscopic findings as those seen in tuberculosis of the meninges, and these few conditions are comparatively rare. As to recovery from tuberculous meningitis, while this must be extremely rare, the possibility of its occurrence must be admitted; and Dr. Edsall referred to a case that he had seen in Widerhofer's Clinic, in Vienna, in which there was a history, two years before, of what had then been diagnosed as tubercular meningitis. The child had apparently recovered entirely, but ultimately died of tuberculosis. At autopsy, the meninges exhibited the lesions of an old meningitis; and so distinguished a pathologist as Kolisko had stated that he considered the meningitis to be tuberculous. One other similar case had occurred in the practice of Fronz, at that time in charge of the Children's Hospital in Vienna.

DR. HAMILL referred to a case that had died several years ago, in his wards at St. Christopher's Hospital, with tuberculous meningitis. Three or four years previously, the child had had an attack that was thought to have been tuberculous meningitis. At the autopsy an old meningitis was found, and the lesions were studied microscopically by Dr. Kelly; there was extreme thickening of the meninges, evidently chronic, but it was impossible to determine whether or not the older lesions were tuberculous.

DR. HAND, in reply to Dr. Miller's question as to the clearness of the fluid, stated that if it is not examined at once, it may, in some instances, be perfectly clear, except for the slight strand of fibrin that forms; and that in so-called serous meningitis, the fluid is always water-clear. As to the character of the cells found in the exudate in their relation to the duration of the disease, he mentioned 4 cases showing over 90 per cent. of lymphocytes, in which the course previous to the puncture had been

only from three to ten days. He believed that it is extremely important to follow the technique which he had described, in the search for tubercle bacilli. In this way, he considered it possible, in almost all instances, to find tubercle bacilli, if they are present. If they are not present in the fluid that is obtained by the puncture, it cannot, of course, be absolutely determined that these bacilli are actually absent from the meninges; but if they are present in the fluid, he considered the method detailed by him almost certain to lead to their discovery.

Serum in Scarlet Fever.—Since the discovery of antidiphtheritic serum a number of experiments have been attempted, often with little success, to apply the same principle of progressive immunization to various animals by means of cultures or toxins of microbial origin with the view of obtaining curative serums for other infectious maladies, such as cholera, small-pox, typhoid fever, etc. The eruptive fevers and in particular scarlet fever have not lent themselves to these researches, because the agents producing them are not very fully known, but as a first attempt to answer the general question of immunization in these allied diseases it has been asked whether the serum from the blood of subjects recently cured of scarlet fever, for example, might not be capable of exercising favorable influence against this disease? Weisbecker (*L. Sém. Méd.*, March 26, 1902) has shown that such injections seem to make the patients feel better, but do not have a very definite effect upon the various other symptoms, such as the fever and local signs. The results were, in short, somewhat contradictory. E. von Leyden, O. Huber,, F. Blumenthal have also carried out a similar series of experiments. Von Leyden injected only 10 c.cm. of serum from convalescents, and later 20 c.cm. without ever seeing any bad symptoms. He estimates, furthermore, that with advantage this dose may be increased. It goes without saying that it is of the highest importance to be certain that the subject furnishing the serum is exempt from various diseases. This serumtherapy was applied in about 16 cases. One of them was a woman, who after an abortion suffered also from scarlet fever. In her case the result was remarkable. In 15 other patients, 6 gave positive and 9 doubtful results after treatment. Von Leyden thinks that his experiments have proved great possibilities for this form of treatment.—*Medical News.*

Current Literature.

MEDICINE.

MacLlwaine, S. W.: Myxedema in Mother and Child. (*The British Medical Journal*. No. 2160.)

A woman previously healthy developed Basedow's disease which persisted for three years. Meanwhile the skin became dry, with falling out of the hair and it became evident that myxedema was also present. The general improvement under thyroid extract left no doubt as to the diagnosis. About a year after the complete recovery of the woman she bore a child which remained perfectly well until a year old when an attack of dysentery developed, leading to complete loss of health out of which state the patient emerged as a typical cretin. Her recovery under the use of thyroid extract is said to have been dramatic.

Hall, Arthur: Case of Sporadic Cretinism in Which Relapse Occurred Owing to Omission of Thyroid Extract. (*The British Medical Journal*. No. 2160.)

Treatment of the baby was begun when the latter was fifteen months old and eight or nine months later the cure appeared to be complete. After having used thyroid extract steadily for a year, the drug was discontinued and thenceforth the health of the patient declined steadily. Improvement rapidly followed a return to the old remedy, which however was ultimately given up by the parents who thought it injurious to the general vigor. The patient is now seven years old and his appearance suggests myxedema rather than cretinism, much permanent benefit having followed the persistent use of the thyroid substance.

Poynton, F. John: Two Cases of Partial Cretinism Which Developed Swelling of the Thyroid on Cessation of Treatment by Thyroid Extract. (*The British Medical Journal*. No. 2158.)

In 1 case which had been under thyroid treatment for a long period, the temporary suspension of medication (during an attack of diphtheria) seemed to lead to a relapse, in respect to both

the goiter and general condition. This relapse yielded at once to treatment.

In the other case treatment was suspended because the child seemed to have recovered. Two months later the neck appeared to enlarge, while mental dullness and thick speech returned. Treatment was promptly resumed and the goiter and associated symptoms soon disappeared.

In both these cases the goiter and cretinism were but slightly developed and might readily have been overlooked.

Smith, Fred. J.: Hemiplegia in a Boy. (*The British Medical Journal.* No. 2158.)

The patient was nine years old and of good family and personal history. About six months before consultation a loss of power had been noted in the right arm and leg, the boy losing his ability to hold the pen for writing, while in walking his foot was turned inward. These abnormal conditions were progressive in character. Upon admission, his organs were all found to be intact, save those of the nervous system. There was a loss of power in both the upper and lower extremities with some spasticity. There was no notable wasting of the muscles. As for sensation, everything was normal save the sense of temperature, the patient having defective judgment as to heat and cold. Tumor of the brain could be excluded, as could the possibility of an intracranial lesion at birth. The sensory anomalies suggested syringomyelia. All in all the case was problematical.

Rupp, Adolph: The General Complications and Sequelæ of Measles. (*Medical Record.* No. 1645.)

A great variety of lesions and symptoms occasionally found with and after measles includes stomatitis, gangrene of the mouth, diphtheria, laryngismus, subglottic edema, laryngeal perichondritis, bronchitis, bronchopneumonia, jaundice, swollen Peyer's patches, colitis, vulval gangrene and diphtheria, pleurisy, endo- and pericarditis, subacute peritonitis, enlarged lymph nodes which may become tuberculous, bronchial asthma, enlargement of the thyroid, convulsions, nervous prostration, coma, tremor, dementia, etc., etc. Naturally the distinction between a rare but genuine complication and a mere coincidence is difficult to draw. The best attested of the former are those which appear to repre-

sent an intensification of the natural lesions of the various mucosæ and of the natural toxemia of the disease; together with those in which measles has specially prepared the soil for other infections.

Bury, Judson S.: A Case of Complete and Temporary Paralysis of the Limbs in a Child. (*The British Medical Journal.* No. 2160.)

This case was thought to be an instance of recovery following acute anterior poliomyelitis. The patient was nine years old and after a chill and rise of temperature lost suddenly the use of her legs and later of her upper extremities as well. About five days after the supervention of the paralysis, some of the patient's power returned and within a month her recovery was complete.

Churchill, F. S.: A Case of Severe Anemia With Enlargement of the Spleen in an Infant. (*The Chicago Medical Recorder.* Vol. xxii., No. 5.)

The patient was two and a half years old, rachitic and delicate, weighing sixteen pounds and ten ounces. She was emaciated, had slight enlargement of the cervical lymph nodes, a distended abdomen, some edema of the feet and an enlarged spleen. The urine contained hyaline casts but no albumin. There were 2,104,000 red blood cells at the first examination and only 860,-400 three weeks later. The number of leukocytes varied from 18,800 to 25,400, with the neutrophiles in greatest numbers. Normoblasts were present. There was obstinate diarrhea and death was due to pneumonia one month after observation began. The author considers the case one of anemia infantum pseudoleukemia, caused by rachitis with obstinate gastrointestinal disturbance, the effects of malnutrition being felt especially in the blood-making organs. It illustrates what marked changes we may get in the blood of infancy as the result of extreme malnutrition, anemia infantum pseudoleukemia being a secondary anemia.

Wollstein, M.: Hepatic Lesions in Infancy. (*The American Journal of the Medical Sciences.* Vol. cxxiii., No. 5.)

In a study of 370 autopsies on children under four years of age only 47 livers were found to be normal, 85 were congested,

2 were cirrhotic, 22 showed tubercles, 45 tubercles and fatty change, and 169 were fatty. The fatty livers occurred most often with suppurative inflammations, next in frequency with tuberculosis, pneumonia and the intestinal diseases. It was never found in uncomplicated marasmus and was inconstant both in syphilis and in rickets, neither disease seeming to cause a predisposition to fatty infiltration of the liver. The acute infections caused the lesion in the present series of cases.

Of the 2 cirrhosis cases 1 was syphilitic in origin and the other was due to congenital obstruction of the hepatic cystic ducts.

Coffey, E. R.: Malignant Small-Pox Fatal Within Six Hours. (*The British Medical Journal.* No. 2160.)

The case was one of supposed hemorrhagic small-pox in a boy ten years old. When first seen the patient was covered with a subcutaneous purpuric rash together with a measles-like exanthem. There was a dusky hue to the surface and intense prostration. At a slightly later period intensely hemorrhagic papules, few in number, appeared on the face and buttocks. Death quickly supervened. The diagnosis was agreed upon by the medical men who saw the case, but there had been no known exposure to small-pox. The patient had never been vaccinated.

Durante, Durando: Virulence of Intestinal Bacteria and Fecal Toxicity in Enteritis of Childhood. (*La Pediatría.* Vol. ix., No. 4.)

The bacteria found in the feces in enteritis do not differ materially from those which are recognizable in health. The *bacillus coli* predominates in each case. There is no constant relationship between the severity or type of an attack of enteritis and the virulence of the bacteria. In some cases this virulence may increase and decrease with the course of the disease, but it is probable that these fluctuations are due to mixed infection.

In regard to fecal toxicity, or better the amount of toxic material which may be extracted from the feces, it appears to have a possible prognostic significance. High degrees of virulence of bacteria associated with a low grade of toxicity appear to show that the organism is able to withstand the onslaught of the

disease by neutralizing the bacterial toxins. If the converse occur, the prognosis is naturally grave.

Finizio, Gaetano: Researches into the Gastric Ferments of Children. (*La Pediatria.* Vol. x., No. 4.)

The gastric contents of healthy children always contain pepsin, chymosin and a lipolytic ferment. The maximum digestive power is found in the secretions of the fasting stomach; and this power diminishes as digestion sets in although before the process is over the juices almost attain their initial power. As a rule, but by no means invariably the potency of the gastric juice is diminished in gastric dyspepsia. In some cases the power of individual ferments is variably affected. The researches were made upon children of all ages.

Weil and Descos: The Blood in Varicella. (*Gazette des Maladies Infantiles.* No. 20. 1902.)

The writers judge from a study of 20 cases, that no marked variation from the normal condition exists in the blood in varicella. There is occasionally a slight increase in the poly-nuclear cells but an increase of mononuclear cells does not occur nor are myelocytes found as has been claimed by previous writers. The total absence of myelocytes is the most striking point.

The picture which the leukocytes present in varicella differs completely from that found in variola and an examination of the blood is therefore of the greatest value in differentiating these two diseases.

Ottolenghi, R.: Analysis of the Urine as a Means of Determining the Age of Newborn Infants. (*Gazette des Maladies Infantiles.* No. 16. 1902.)

He examined the urine of thirty-five children who were exclusively breast-fed and of five still-born infants whose bladders contained several cubic centimetres of urine. The catheter was used in each case, urine having been obtained at birth and twice a day, subsequently the results of these analyses are:

I. Chlorids are always present in the urine of the newly-born and of still-born infants. II. In 109 analyses, made in 25 cases of the newly-born, phosphates were not found until the

second day by the uranium acetate method, it is not till the third and fourth days that traces of these salts are clearly demonstrated.

SURGERY.

Russell, R. Hamilton: The Congenital Factor in Hernia.
(*The Lancet.* No. 4109.)

Oblique inguinal hernia is always due to the presence of a congenital sac which in the vast majority of cases is furnished by a patency of the whole or part of the processus vaginalis. There is no evidence of the existence of congenital weakness of the abdominal wall as a contributory factor. If the sac is extirpated the hernia does not return.

Of 115 cases of hernia in childhood treated by the author's operation but two have undergone recurrence for which the original condition and intervention were not at all responsible.

To the views above stated, which have been upheld by the author in earlier writings, and which were at first believed to obtain in children only, another is herewith added to the effect that the appearance of hernia in adult life may depend equally upon the presence of this congenital sac.

Griffith, Frederic: The Complications of Phimosis, with Treatment. (*The New York Medical Journal.* No. 1227.)

Acute phimosis which resists the continued application of hot water should be reduced by the aid of a simple dorsal incision. Circumcision is of course the specific treatment for chronic phimosis, but it is not necessarily indicated in all cases. In regard to the incidental effects of circumcision as a preventive of venereal infection, personal experience does not teach that the Hebrew enjoys any relative immunity over members of uncircumcised races. The ritual operation is very apt to leave a contracted meatus which must be remedied in time by meatotomy. No personal experience is mentioned as to the alleged benefits of circumcision in childhood for the reflex irritation of an elongated or adherent prepuce.

Erdmann, John F.: Intussusception with a Report of Three Additional Operative Cases. (*Medical Record.* No. 1652.)

The 3 cases reported make a total of ten operations for intussusception in children; from which personal record it is shown that the operative mortality amounts to 50 per cent. The fatalities were in cases of late operation, some of the patients being moribund. Two other cases seen during the same period were treated without operation and of this number one recovered under the injection treatment. In future, the author would not proceed at once to resection in delayed operation, but would perform temporary enterotomy. In but half the cases was the tumor palpable through the abdominal wall. The ileo-colic intussusception was as common as in all other localities combined.

Taylor, R. Tunstall: The Clinical Aspect, Symptoms and Differential Diagnosis of Osteomyelitis. (*The New York Medical Journal.* No. 1224.)

Several cases which occurred in orthopedic practice are described as follows: 1. A four-year-old boy fell downstairs, began to complain of his right thigh four days later, and when seen three weeks after the accident exhibited a fusiform swelling at the middle of the femur, with fever and emaciation. He was operated upon promptly and five or six ounces of pus evacuated from the medullary cavity of the bone. Much dead osseous tissue was chiselled away. The intervention was well borne but the child had become too profoundly septic to recover. He lived over a month and death was due immediately to embolism. 2. A child aged one and one-half years was thought to have sustained an injury. The left thigh swelled and a subperiosteal abscess formed in the continuity of the bone near the epiphyseal line. After opening, curettage and drainage, traction and rest were employed and recovery resulted with three-eighth inch shortening. 3. A child aged four and one-half years sustained a fall, after which pain developed in the right thigh, with fever. The condition was variously regarded as malarial infection, tuberculosis and fracture. In seeking to wire the supposed break in the bone, the true state of affairs was learned, and dead bone removed. 4. A boy aged ten sustained an injury to the left tibia by direct violence and developed osteomyelitis of that bone, with synovitis of the corresponding knee joint, osteomyelitis of the

right clavicle and a subcutaneous abscess in the gluteal region. After skiagraphy had made the exact diagnosis, the bone lesions were successfully curetted. The synovitis underwent spontaneous resolution.

Hepburn, Malcolm L.: Case of Non-Development of the Large Intestine and the Greater Part of the Ileum. (*The British Medical Journal.* No. 2160.)

Since the birth of the child two days before, its bowels had not moved, while vomiting of a dark fluid became continuous. The abdomen was but little distended. Some collapse was present. Examination showed that there was a short cul-de-sac opening outward in place of the rectum. An inguinal colotomy revealed the fact that the descending colon ended below in an impervious fibrous cord. The wound was closed at once and a right inguinal colotomy attempted, but it was found that the small intestine was also impervious for the greater part of the length of the ileum. The jejunum, filled with meconium, was evacuated and sutured to the colotomy-wound but the baby soon succumbed to shock. Two other children of the same mother had been born with imperforate anus.

HYGIENE AND THERAPEUTICS.

Thomson, R. S., and Love, Andrew: Salol in the Treatment of Small-Pox. (*The Glasgow Medical Journal.* Vol. lvii., No. 6.)

Several cases in children are given. In a boy, aged six years, the salol was not given until the thirteenth day. The patient recovered, his disease having been of the semi-confluent type. In a boy aged four and one-half years salol was given throughout in doses of 3 grs. every three hours. The case was of the discrete type. A girl of three years, with a severe case of discrete small-pox died without having derived any apparent benefit from the drug, which was given from the fourth to the twelfth day. None of the preceding patients had ever been vaccinated. Several vaccinated children were also treated with salol, and the course of the disease appeared to be modified; but whether from the drug or the successful primary vaccination, could not be determined. Thus

far, then, the claim of Dr. Begg as to a specific efficacy of salol in variola cannot be confirmed.

Ballantyne, J. W.: The Problem of the Premature Infant.
(*British Medical Journal.* No. 2159. 1902.)

As the premature infant is called upon to play the part of a newborn child with the *personalia* of a fetus, his management should consist of an attempt to attain a perfect adjustment of vital capabilities which are inefficient to meet peculiarly exacting requirements. The three leading indications are: To prolong the most useful and best features of fetal life after birth; to supply some of the features which cannot be prolonged; and to strengthen the inefficient functions peculiar to post-natal life. The incubator meets the first indication, in that it prevents the great danger of hypothermy. Breast-milk, fed to the infant by gavage, and the administration of iron in the form of liquor ferri peptonatus in doses of five minimis meet the second indication. Finally the third applies especially to the strengthening of pulmonary respiration. If resuscitation at birth is necessary Schultze's method of artificial respiration is not so good as alternate flexing and extending of the trunk of the child as it lies upon the palms of the obstetrician's hands.

The problem of the premature infant is especially urgent in the British Isles because of the steady fall in the birth-rate in recent years.

Dessau, S. H.: A Contribution to the Subject of Infant-Feeding. (*The Medical News.* Vol. lxxx., No. 22.)

For the past six years the author has found that the simplest, cheapest and best food for daily use is a fair average quality of cow's milk diluted with water according to the age and digestive capacity of the child. "Top milk," or the upper portion of milk that has been allowed to stand in a vessel at a temperature not above 60° F. for from four to six hours, is sometimes preferable. A pinch of table salt or phosphate of sodium is added, and a heaping teaspoonful of raw cane sugar to the quart. The mixture is placed in a double cooker with cold water and allowed to remain on the fire for ten minutes after the water has begun to boil, virtually pastuerizing it. The principal and most important object of this process is not so much to attack germs as

to act upon the casein. Dilution materially aids this. For infants under three months of age equal parts of milk and water are used, and for older babies one part water to three of milk. If constipation occur, a larger dilution or one dram of malt extract to the quart relieves the difficulty. The addition of cream did not work satisfactorily.

Dendy, Mary: The Feeble-Minded and Crime. (*The Lancet.* No. 4108.)

The main cause of the various forms of human degradation is a weakness of intellect. In the higher walks of life, the weak mind is protected from those forms of degradation which prevail among the poor, but none the less it is often present. The expression of this weakness is seen alike in the corner loafer, criminal, pauper, drunkard, prostitute, vagabond, etc. To care for all these individuals, maternities, workhouses, idiot asylums, reformatories, industrial schools and the like are maintained. It is possible that this entire superstructure of charity might be rendered unnecessary in time by efforts directed toward the very young child. These weak-minded individuals are very pliable at an early age and might be made to grow up as harmless instead of vicious individuals.

Wiesner, D. H.: Eye Complications of Measles and Their Treatment. (*Medical Record.* No. 1645.)

Simple conjunctivitis requires mere cleanliness, with boric acid solution as a collyrium, and vaselin to prevent adhesion of the lids. Darkening the room is unnecessary. In mucopurulent conjunctivitis it may also be necessary to apply iced cloths locally, but astringents and atropin are not indicated. Blepharitis requires the ointment of yellow oxid of mercury. In blepharo-spasm treatment should be directed to the conjunctiva or cornea and the orbicularis should be forcibly stretched by the fingers or retractors. Styes should be treated by hot applications and if the pus does not escape spontaneously it should be squeezed out with dressing-forceps. Keratitis demands atropin and the ordinary regimen for conjunctivitis save that cold is contraindicated while very hot compresses should be applied to the closed lids for ten or fifteen minutes every two or three hours.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

OCTOBER, 1902.

[No. 10.

Original Communications.

DIPHTHERIA, WITH AND WITHOUT ANTITOXIN; 159 CASES.*

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This subject is not brought before you with the idea of proving the value of antitoxin in diphtheria but rather to establish certain principles of action which should govern us in the use of antitoxin so that it may be of value to the profession at large.

One hundred and fifty-nine cases of diphtheria comprise the number of cases of this disease seen by me. Forty-two were operative (intubation) cases. One hundred and three were treated without the use of antitoxin and 55 with antitoxin. Among the first series 60 died and 43 recovered. Six succumbed in less than 48 hours and perhaps would not have been saved by our present methods of treatment. The duration of the disease in the remainder was from 48 hours to three weeks. The 103 cases occurred in New York Infant Asylum—an institution advantageously situated in the open country, built on the dormitory plan, and among children who were in better physical condition, better fed, housed and clothed than many of the patients who make up the antitoxin cases to be referred to later. Further, when ill, resident physicians were in attendance, seeing the patients many

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

times a day, under the advice of the attending physicians; the patients were cared for by trained nurses, in buildings set apart for the exclusive use of the sick, and supported by a generous board of managers who supplied every need. The fact that these were institution children does not, to my mind, bear on the mortality except that it would tend to make the death rate less.

The ages of the patients ranged from six months to five years. It may be interesting in this connection to call attention to the immunity of the great majority of the very young to diphtheria. Our youngest patient was four months old. The period covered by the epidemic was three years. There were constantly in the institution from seventy-five to one hundred infants from three weeks to six months of age, equally exposed with the older inmates, and but one took the disease.

Forty-eight of the fatal cases developed laryngeal symptoms and in thirty the stenosis was sufficiently severe to require intubation. Twenty-two cases had complicating nephritis. At the autopsy 53 cases showed membrane in the larynx, trachea or bronchi. In 5 cases the membrane extended to the fifth division. In 5 cases no symptoms had been present during life to suggest the presence of a small amount of membrane in the trachea. In one only the membrane was found in the esophagus, completely lining and adhering to the tube. Forty-six cases showed bronchopneumonia at the autopsy.

RECOVERY CASES, WITHOUT ANTITOXIN.—The youngest recovery case among the forty-three was four months of age; the oldest, ten years. Nine had laryngeal stenosis; four were intubated. The tube being worn respectively five, seven, thirteen and seventeen days. Diphtheritic paralysis occurred in five. These cases were treated by the methods then in vogue, internally with calomel, bichlorid of mercury, iron, chlorate of potash. Locally, with medicated steam inhalations, vaporized calomel, applications to the parts of trypsin, sulphur, solutions of bichlorid of mercury, chlorin water, etc. The only service we rendered these patients was by supportive measures. Suitable clothing, well ventilated rooms, easily digested nourishment, and judicious stimulation were provided, and then the child died or recovered depending upon the severity of the disease and the resistance of the patient.

After living with the above one hundred and three children, ill with diphtheria, seeing them several times a day, and in many instances administering the treatment myself, I am convinced that

not one case was influenced favorably in the slightest degree by any *specific* treatment.

THE ANTITOXIN CASES.—Fifty-six cases comprise the antitoxin group; the ages of the patients ranged from nine months to ten years. Forty-one non-operative cases with one death; 15 operative cases with three deaths. All showed the Klebs-Löffler bacillus.

Nonoperative, first day injection cases, fourteen in number, 12 cases received 2,000 units. In one only the dose was repeated the second day of illness. The throats of these were clear of membrane in thirty-six to seventy-two hours after the first injection. Two received 3,000 units. The throat in one was clear in thirty-two hours, the other in 120 hours after the first injection.

Nonoperative, second day injection cases, nineteen in number; 14 cases received 2,000 units, which amount was repeated in four on the third day. Five cases were given 3,000 units, and in one the amount was repeated on the third day. In 18 cases the throats were clear in from thirty-six to ninety-six hours after the first injection. One required five days before the throat was free of membrane.

Nonoperative, third day injection cases, four in number. One was given three injections of 2,000 units at twenty-four hour intervals. One, two injections 2,000 units at twenty-four hour intervals. One, two injections 3,000 units at twenty-four hour intervals. In two the throats were clear in seven days. In one case the history fails to mention when the membrane disappeared.

Nonoperative, fourth day injection cases. One case, 2,000 units were given, the throat cleared in forty-eight hours after injection.

Nonoperative, fifth day injection cases. One case, 2,000 units. Throat clear in 420 hours.

Nonoperative, eighth day injection cases. One case, 2,000 units which amount was repeated in twenty-four hours. Throat clear in seventy-two hours after first injection.

Two of the above had received immunizing doses. A child of nine months was given 300 units and developed diphtheria in four days. The patient recovered after one injection of 3,000 units. A boy four years old was given 1,000 units for immunization; he developed diphtheria in thirty-six hours which was controlled by one injection of 3,000 units. The throat cleared in forty-eight hours after the second injection.

Four patients developed diphtheritic paralysis of a mild degree. In two the muscles of deglutition were involved; in two, one lower extremity.

None of the cases had nephritis; the tonsils were involved in 136 cases out of the entire number of 159.

ANTITOXIN RECOVERY CASES—OPERATIVE.—Twelve in number, aged one to six years. *Second day injection cases*, six in number. One received 1,000 units. One received 2,000 units. Two received 3,000 units, and the third day 3,000. One received 3,000 units, throat clear in three days. One received 2,000 units, throat clear in three days; relapse on eighth day, 1,500 units given; throat clear in three days. *Third day injection cases*, six in number. Two received 3,000. Two received 2,000 units. One received 2,000 units.

One received 3,000 units and 2,000 units on fourth day.

Five were intubated on the second day of illness. Seven were intubated on the third day of illness. The tubes were worn from three to seven days in 10 cases. In one the tube was worn two weeks and in one it was worn four months.

ANTITOXIN CASES—FATAL. OPERATIVE.—Three in number. Ages—two, two years; one, three years. One case was injected the second day with 2,000 units, intubated the second day of illness and died the same day with diphtheria and lobar pneumonia. An early case and not enough antitoxin given.

One case was given 3,000 units on the fifth day, intubated on the fifth day, died in twelve hours.

One case was intubated the fifth day, 3,000 units given the fifth day, which amount was repeated twice at twelve hour intervals, the child died of heart failure in forty-eight hours after the first injection. One case died with pneumonia, the other two were injected on the fifth day. Both were septic at the time and practically hopeless.

Nonoperative.—My first and only fatal nonoperative case treated with antitoxin was given 1,000 units on the fourth day of the illness; the child died on the eighth day. These fatal cases do not in any way bear upon the value of antitoxin as a remedy in diphtheria and it is hardly fair to include them in the antitoxin group. In the nonoperative case it was my first experience with antitoxin. I did not know how to use the serum and it was not of the high order of efficiency that we have at the present time.

The good results in the cases treated with antitoxin are to be

attributed to the early use of the remedy. In suspicious cases I do not wait for the culture. By suspicious cases I mean visible membrane. I inject and then take a culture. I have injected a few cases which did not develop diphtheria later. To the best of my knowledge the recovery cases are all living at the present time and never have shown any untoward results from the use of the antitoxin.

In addition to bringing the antitoxin into use at the earliest possible moment it is necessary to be able to know when more is required; this is a point not generally appreciated. According to my observation the beneficial effects are not evident until ten or twelve hours have elapsed. If after twelve hours no improvement at all is evident, I reinject. After improvement is noticed by a fall in the temperature and by the membrane taking on a ragged granular appearance, I wait twelve hours more to observe the further changes. If at this time the character of the membrane remains unchanged, or shows fresh deposit with perhaps a rise in temperature and increased prostration, the antitoxin is repeated.

The chart which I present demonstrates well the effect of antitoxin upon the disease as indicated by the temperature. Improvement was noticed after each injection but was not sufficient to control the disease until 9,000 units had been given, this being the amount of the antidote which the little girl required to combat the poison in her system. (See chart, page 726.)

The death rate in diphtheria may be reduced to a very small percentage by the early use of full doses of antitoxin, not less than 3,000 units which should be given during the first twenty-four hours if possible. This amount is to be repeated without hesitancy if improvement is not promptly observed. When in doubt intubate; so when in doubt, inject. This I practice and teach. About 20 per cent. of the cases develop urticaria which is annoying for a few days. I have noticed no other unpleasant results from the use of the serum.

I would establish the following principles:—

With visible membrane inject at once, and take a culture.

In croup, inject if there is inspiratory and expiratory obstruction.

The patients should be seen at twelve hour intervals.

Reinject in twelve hours if the patient is not improved or if improvement is not marked.

If continued improvement does not follow reinject at twelve hour intervals until the membrane disappears.

Dosage, 2,000 units for a child under one year of age, the amount to be repeated if necessary.

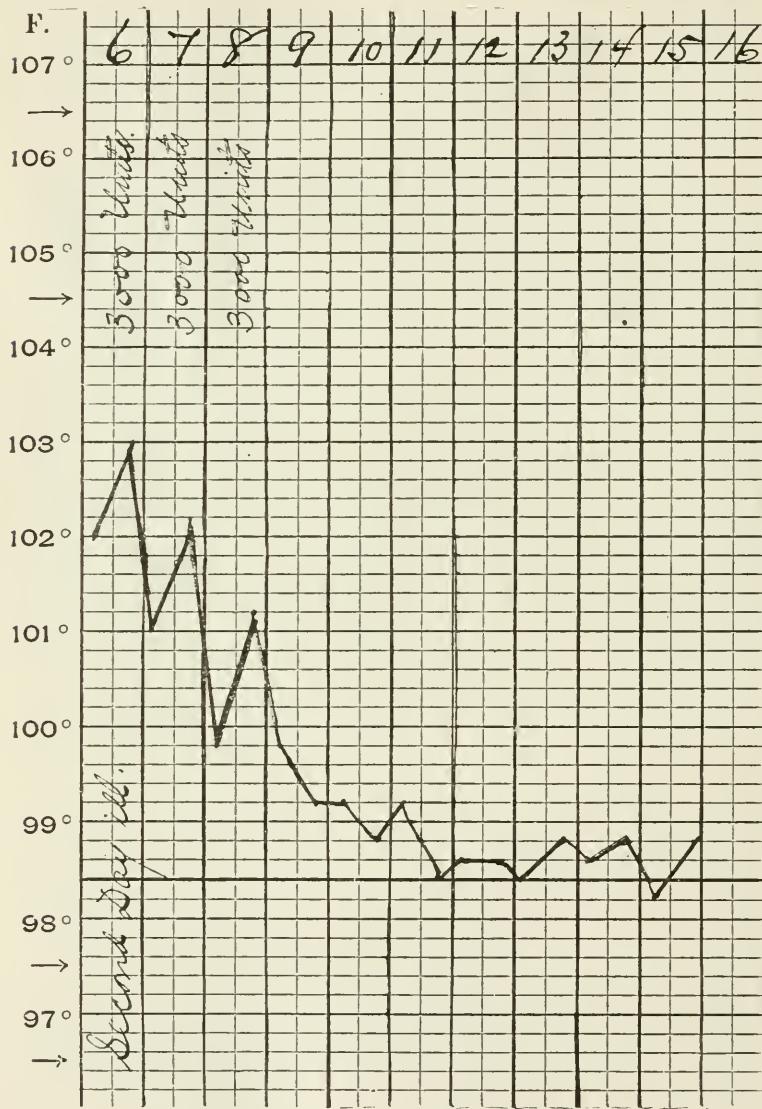


CHART SHOWING THE INFLUENCE OF ANTITOXIN IN REDUCING TEMPERATURE.

Three thousand units for a child over one year of age, the amount to be repeated if necessary.

SOME REMARKS ON INTUBATION IN DIPHTHERIA.*

BY JOHN H. MCCOLLOM, M.D.,

Boston.

Before saying anything regarding intubation I should like to refer to the paper that has just been read. The paper was very interesting and I am glad that the point of early administration of antitoxin was mentioned. I do not know of anything that has been so forcibly brought to my mind as the importance of its early administration in doubtful cases. The physician has no right to wait for the result of a culture. Take a culture by all means, but if you wait twenty-four hours to administer the antitoxin you put the patient's life in jeopardy. In the past seven years at the South Department of the Boston City Hospital there have been 134 cases of diphtheria contracted by doctors and nurses, under the worst conditions, because the individuals were debilitated by hospital life. At the Boston City Hospital two doctors and four nurses lost their lives from diphtheria, before the days of antitoxin. In the 134 cases there was no death, because as soon as there were any symptoms of diphtheria the patients were given 4,000 units of antitoxin. These were cases of diphtheria both from a clinical and bacteriological standpoint. There have been instances where the young men and women have taken antitoxin unnecessarily, but there have never been any injurious effects following its use.

We are all aware that intubation is not a new thing. In 1858 it was brought before the French Academy of Medicine, but met with a poor reception and finally fell into disrepute. In 1885 Dr. O'Dwyer commenced his investigations and devised the tubes known by his name. We can all go back to the days before the use of antitoxin and all realize how hopeless we felt when called to a case of laryngeal diphtheria. Tracheotomy might be performed and the patient's life saved thereby, for a short time, but he would almost surely die from bronchopneumonia, or extension of the diphtheritic membrane, which extension was then not very well

* Remarks made before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

understood. One very important symptom indicating this extension is the formation of a tough, hard, tenacious mucus on the tracheotomy and intubation tubes. The death rate in tracheotomy cases was very carefully analyzed some few years ago by Drs. Lovett and Morse, who tabulated some three hundred and twenty-five operations performed at the Boston City Hospital, and they found the death rate to be something like 75 per cent. Of course many of the patients were admitted to the hospital in a moribund condition. Intubation at that time was not done and it was not until 1889 or 1890 that the first case of intubation was performed at the Boston City Hospital.

Lately, Bayeux has published an extensive work on diphtheria and speaks at length on intubation. He has devised a set of tubes that he considers a vast improvement over the O'Dwyer tubes. It is a question with me whether they are such an improvement; but they do have one advantage, they can be easily extracted by what he calls his method of enucleation which cannot be done as well with the O'Dwyer tube as with the Bayeux tube. This is of some importance in private practice where you cannot always remain with the patient to extract the tube. I show you the Bayeux tube and you will see that it is short as compared with the O'Dwyer type. That is why it can be extracted so much more easily.

One of its disadvantages is that it is more easily coughed up. You will notice that the obturator is attached to the introducer in a different manner from that of O'Dwyer's. In Ermold's modification of the O'Dwyer's set the obturator and introducer are all one piece. It is an interesting fact that in the Children's Hospital in Paris, in the pavilion named after Troussseau, the greatest opponent of intubation, all operative cases of laryngeal diphtheria are treated by this method.

The feeding in these cases is of great importance. Formerly I used the nasal method, but found that I was having too many cases of middle ear disease and so discontinued it and adopted the esophageal method. I had a tube of soft rubber devised for this purpose; it cannot become clogged.

Heretofore it has been considered that intubation was only applicable in children and that after fifteen years of age tracheotomy was indicated. But, having had some 6 or 8 cases of intubation in adults, I am convinced that the stenosis can be relieved easier by intubation than by tracheotomy. One of my patients

was a man sixty years of age, in whom intubation was somewhat difficult, but less so than tracheotomy would have been.

Since the South Department was opened there have been 1,200 intubations and the death rate, including all cases, was 40 per cent. Eliminating deaths caused by diphtheritic paralysis, the rate was about 30 per cent. Eliminating moribund cases, patients dying within twelve hours after admission, the death rate was 25 per cent. I have looked over the statistics of the London and Glasgow hospitals for diphtheria and find the death rate to be 35 per cent. In these hospitals operations are not performed in apparently hopeless cases. Our death rate has been 25 per cent. and I think it is due to the fact that we operate early and give large doses of antitoxin.

Much has been said pro and con. about tracheotomy and intubation. In private practice, especially in the country, it is quite true that tracheotomy may be the safer operation, because the patient may cough up the tube, or it may become clogged, but in the hospitals or in the cities where the patient can have constant watching, intubation is much better for three reasons. First, very little shock; second, parents will consent to intubation much more readily, and third, the chances for bronchopneumonia are much greater in tracheotomy than in intubation, and the reason for this is readily understood; in intubation the air passes through the natural channel and the chances of irritation are comparatively slight. Baginsky in his work on diphtheria says that intubation does not predispose to bronchopneumonia.

It has been said that esophageal feeding is difficult, but our nurses at the hospital are able to do it with ease and I do not know of any accident that has ever occurred.

I know of only one instance where there has been a retained tube and that was the case of a little girl who coughed up the tube quite a number of times and then it became necessary to do a tracheotomy and she is wearing the tracheotomy tube now. I do not see how it is possible with care in performing the operation to produce any great injury to the air passages. The amount of force used should be slight.

So far as the treatment of laryngeal stenosis by other means, I have given up the inhalation of steam, sublimation of calomel and the croup kettle, because I find that they do not do good and I operate early.

The length of time a tube stays in is varied. I generally take it out at the end of three or four days. Sometimes I have to put it back, but not often. The most favorable thing that can happen is for the child to cough up the tube at the end of forty-eight hours and then have no return of laryngeal stenosis.

I want to say again, and want to emphasize the fact, that it is important to operate at once without waiting for the result of cultures, because otherwise very valuable time may be lost; and more than that the culture may be negative, for it is common to get negative cultures in laryngeal diphtheria. At least 50 per cent. of our laryngeal cases gave negative cultures. We had a patient a short time ago who had simply stenosis, the peculiar, difficult breathing that you see in laryngeal diphtheria. Cultures taken were negative. I intubated the patient and the tube stayed down two minutes when it was coughed up and with it a cast of the larynx and right and left bronchi. We had lately a patient who did not have any sore throat. The child had an attack of coughing and the attendant found on the bed a cast of the larynx. I immediately admitted the child to the South Department and he coughed up another cast at the end of twenty-four hours. After autopsy the lungs were put in formalin and on section you could see the minute bronchi filled with the diphtheritic membrane.

DISCUSSION.

DR. CAILLÉ.—I was very much pleased when I saw the announcement of this subject. It seems to me that in the last few years, since we know something about diphtheria, and since we are able to cure it, we do not discuss it as much as formerly. As a rule medical practitioners are prone to discuss things they do not know much about and cannot cure.

I agree fully with what Dr. Kerley said about the treatment of diphtheria—by antitoxin—and that our former treatment was of little moment. Still I would remind him of one fact, that before we had antitoxin, our results were better with croup cases when we used mercury before intubation than when it was not given. It seemed to have some effect, probably in loosening up the membrane. Furthermore local disinfection of the nasopharynx will always be of considerable benefit. My personal experience is fully in accord with what the reader of the paper has said about the management of his cases and I have nothing to add to his excellent presentation of the subject.

I also want to endorse every word that Dr. McCollom has said

on the subject of intubation. In croup our management is *antitoxin* early and intubation when necessary. I have used all the instruments on the market and still prefer the old O'Dwyer tubes. The short tubes are coughed up and in private practice this is very annoying, for sometimes we are not within call. O'Dwyer recommended short tubes in cases of foreign body in the trachea when tracheotomy could not be done.

Intubation in adults has been less satisfactory in my hands. I was once asked to tube an adult in the office of a colleague, and did not recognize that there was subglottic obstruction. The patient became cyanotic and after I had introduced the tube stopped breathing when I had removed the tube. I immediately did a tracheotomy and subsequently found that I had struck a subglottic, cauliflower growth and that the patient was bleeding into the lung. The hemorrhage was stopped and the patient recovered. Unless I am absolutely sure that there is no obstruction of this character I will not tube an adult.

A word about the retained tube cases. We have in the Babies' Wards of our hospital two or three retained tube cases every year. The obstruction is generally cicatricial and the result of injury in intubating. It would be well if this society were to express the opinion that intubation is not an operation that everyone can perform or should perform and that no one should attempt it without practice and experience.

DR. JENNINGS.—I wish only to endorse the paper of Dr. Kerley. My observation covers a period extending from preintubation days, an experience of 400 operative cases. The last publication of my assistant, who does most of the work now, covers 230 operations, and since that time we have operated perhaps fifty times more, which would cover in the last three or four years nearly 300 operations, an experience sufficiently wide to enable one to form some conclusions. The mortality rate has been 23 or 24 per cent., the cases being almost uniformly in private practice.

With the dose of antitoxin it has been very rare that we have exceeded 6,000 units. From an economical standpoint the determination of the dose is of importance. While there seems to be no objection to enormous doses, still I think these large doses are not to be advised. Two thousand units repeated in six to twelve hours, perhaps three injections, puts an end to the diphtheritic process and our reasonable mortality rate would seem to show that this is a safe dosage.

In regard to the esophageal feeding, I must confess that while it is occasionally necessary, I rarely resort to it. Either the Castlebury method, or the plan of putting the head of the baby over the table and allowing it to suck the milk is better than the esophageal method.

I agree with Dr. Caillé, that the long intubation tube is to be preferred in private practice, as it is very annoying to have the

tube expelled, and the shorter the tube the more liability there is of expulsion, so I cling to the old O'Dwyer tube.

DR. CHAPIN.—We all prefer intubation but my experience goes back to the time when I was beginning practice and we had a great many tracheotomy cases in the tenement houses. There was one thing constantly happening and that was the collection of thick, muco pus in the lumen at the bend of the canula. The nurse would take it out, clear the open ends and think that the canula was free and put it back, and, several times I came in just in time to save the child's life. With reference to pneumonia I found that by allowing the child to breathe through a moist sponge it could often be prevented; a sponge as large as my hand was first put in hot water and the nurse every fifteen minutes put this right over the tube so that the child would breathe warm, moist air. In that way a great many cases would get along after tracheotomy without developing pneumonia.

With reference to intubations, we have a great many at the Willard Parker Hospital and I must say I think the long tube much preferable. Even then the tube is often coughed up and the child nearly dies before the house physician can be brought into the ward. I would say, too, that we send out with our ambulance a man to intubate, which I think a great advantage. In 1 or 2 cases instead of using artificial respiration I have held the child up by the feet with the head hanging down. One case in particular I remember, where we had much difficulty in getting the tube in and where finally it was gotten in, but the child was blue and did not breathe, it seemed to us, for a great while; we simply held up the child with the head down and in about thirty seconds it recovered.

DR. BUCKINGHAM.—I believe that intubated cases can often be fed by raising the foot of the bed and using soft solids and, I think the use of the esophageal tube is unnecessary cruelty where it can be avoided.

DR. COTTON.—I would like to ask Dr. Kerley and Dr. McCollom if they have not found, since the use of antitoxin, in its well-known effect of loosening up the edges of the membrane, that the tube will sometimes catch the loosened membrane and push it down and cause occlusion of the lumen of the tube. In an experience of four years as city physician in Chicago, diphtheria being quite prevalent at the time, and two years in charge of the infectious wards of the Cook County Hospital, I had some opportunity to watch these cases. I found that in intubating the larynx I met with this difficulty more frequently after than before we used antitoxin, and this I attributed to the use of the antitoxin in loosening the membrane. I issued an order to the house physicians that they should never proceed to intubate without having laid out the tracheotomy case and in several instances I am satisfied that this precaution saved the life of the child.

DR. CRANDALL.—The point referred to by Dr. Cotton has struck me too. Where there is very loose, soft membrane it fills up the tube and separates in pieces that obstruct the tube in a very troublesome manner. In one case under my care the tube had to be taken out repeatedly.

DR. CHAPIN.—Does Dr. McCollom regard a retained tube as always evidence of traumatism in introduction?

DR. MCCOLLOM.—Not always, of course. It may be due to post diphtheritic paralysis, paralysis of the cords. That occurs perhaps in about 1 per cent. of cases. Where the child retains the tube for weeks only that is not what I mean by retained tube, but where it is retained for months. I think a long retention is due to trauma. You can see by means of the mirror when there has been injury to the cords.

DR. ADAMS.—In a case of intubation do you feed by the esophageal method?

DR. MCCOLLOM.—Yes, in the majority of cases.

DR. KERLEY.—I have fed with the tube but only when sufficient nourishment could not be given by other means; with the head lower than the trunk and turned a little to one side I usually succeeded with spoon feeding. Tube feeding has one advantage, however. We know just how much nourishment the child is taking. There is one other measure which should be mentioned because of the relief it affords the patient. I refer to normal salt solution irrigations of the throat; 110° is the usual temperature. Irrigation is best carried out with the fountain syringe, the child holding the tube between the teeth, allowing a fall of about two feet for the solution to flow into the child's mouth and out again. The relief afforded is very great as I can personally testify. I never employ nasal irrigation on account of the danger of forcing infection into the eustachian tubes.

Concerning the string in intubation I always leave it attached to the tube until the child is through coughing, which is generally about fifteen to twenty minutes.

Regarding Dr. Cotton's question about pushing detached membrane down before the tube I had only 1 case where a child stopped breathing and on removing the tube I found it plugged with membrane.

I do not believe that the cause of the so-called retained tubes is always a traumatism. In my case there had been no difficulty whatever in putting in the tube. The dyspnea with the tube removed was entirely inspiratory. There appeared to be an abductor paralysis. I think in not a few cases injury to the parts is caused by the tube not fitting.

I wish to emphasize the importance of repeating the dose of antitoxin, that one injection must not be relied on, that there can be no rule as to the amount which a patient will need, upon the degree of the poison depends the amount of the antidote required.

CHRONIC PARENCHYMATOUS NEPHRITIS IN A
CHILD TREATED BY RENAL DECAPSULA-
TION. (EDEBOHLS' OPERATION).*

BY AUGUSTUS CAILLÉ, M.D.,

New York.

Acute renal infection is occasionally so intense as to lead to a rapid and fatal termination. When renal tension can be relieved in no other way, an incision through the capsule of an acutely inflamed kidney is indicated and may establish a cure. Reginald Harrison, of England, has reported since 1896 a number of such cases and cures. The proposition to treat chronic nephritis surgically was first made by Dr. G. M. Edebohls, of New York, in April, 1899, after various observers, including Edebohls, Rose, Ferguson and Newman had noticed the disappearance of albumin and casts from the urine after operations upon the kidneys.

In the Medical Record on December 21, 1901, Edebohls reports 18 cases of chronic nephritis in adults treated by renal decapsulation. With a view of testing the efficacy of this operation in a severe and otherwise incurable case of chronic nephritis in a five-year-old child, I invited Dr. Edebohls to demonstrate his method and operate upon a patient who had been under observation for three years. The history of this case, briefly told, is as follows:

Clara Buchholz, five years old, had measles of a mild type at the age of two. One month later, her face, legs and abdomen were noticed to be swollen. A well-known physician diagnosed the case as one of acute nephritis from which she apparently recovered after four weeks. A similar attack a month later also ended in apparent recovery. On the occasion of a third attack, which was more severe, with suppression of urine of forty-five hours' duration, the child was admitted to the Babies' Wards of the New York Post Graduate Hospital, November 13, 1900. Her case was diagnosed as subacute nephritis and she was discharged improved December 30, 1900. On April 3, 1901, she was re-

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

admitted during my service with all clinical evidence of chronic nephritis: urine scanty and dark, containing albumin, all forms of casts and renal elements, blood and pus. Her eyelids were puffy and her abdomen contained fluid. After a course of sweating, dieting and the application of intestinal irrigation and the administration of diuretics and diaphoretics, she went home improved.

Nine months later, on February 1, 1902, I found her again an inmate of the Babies' Wards. She was generally edematous, her heart was markedly enlarged, the apex beat being at the sixth interspace, about an inch to the left of the nipple line. The heart sounds were clear, the second sound was accentuated. On the 15th of February, renal decapsulation was performed on both kidneys, the accompanying chart shows for one week before operation and for two weeks after operation a carefully kept daily record of temperature, pulse, respiration, stools, quantity of urine for twenty-four hours, its reaction, specific gravity, percentage of urea, and albumin and the character of casts and renal elements.

At the operation, both kidneys were found to be in a state of chronic parenchymatous nephritis. Each kidney measured over four inches in length and was three times larger in bulk than normal. They were delivered through the usual lumbar incision without much difficulty, the child being placed in a prone position with the abdomen resting upon an inflated round cushion. The capsules were split and removed and the kidneys were then replaced. The healing process was uneventful.

Regarding the rationale of the process, Edebohls in his article says: "Renal decapsulation, is performed with the object in view of creating new and liberal supplies of arterial blood to the diseased kidney. How does the operation effect this object and can the same object be effected in a better way? In answer to the question it is simply necessary to point out that both the denuded kidney and its fatty capsule are most liberally supplied with blood vessels: that both are brought together by the operation over the whole extent of the surface of the kidney and that the necessary result must be the formation on the most extensive scale possible of new vascular connections between the kidney and the fatty capsule embracing it. The fibrous capsule proper forms an almost impenetrable barrier to the passage of blood vessels between the kidney and its fatty capsule, as we have abundant opportunity to verify at operations upon the kidneys. It is not at all uncommon,

for instance, in operating upon a kidney to find the blood vessels of the fatty capsule greatly increased both in number and size, generally as the result of a perinephritis. Now and then a large artery of the fatty capsule will be seen entering and apparently penetrating the capsule proper. On raising the capsule proper from the kidney, however, the artery is not severed and further investigation shows that it does not enter the kidney but is lost upon and in the capsule proper, which has thus intercepted a possible new blood supply to the kidneys."

REMARKS.—During my professional career, extending now over a quarter of a century, I have made the following observations regarding kidney infection: Nephritis following acute infectious disease in children has a tendency to complete recovery. Children who survive the acute stage but continue to show albumin and renal elements for several months, also frequently make a complete recovery. In a certain percentage of cases, recovery does not take place. Seven of my patients who developed nephritis following infectious disease, such as scarlatina, diphtheria, measles, etc., under my personal observation, subsequently died in consequence of kidney insufficiency. One at the age of five, one at six, two at ten, one at fifteen, and two at the time of the first confinement after marriage at twenty-one and twenty-two. In view of the uselessness of medication, in chronic nephritis, the proposition to treat chronic Bright's disease, surgically, should be met without prejudice. The case which I report upon is not cured at the time of the present writing. The condition of the child when last examined is as follows:

Temperature, 99. Pulse, 90. Respiration, 20. The child is somewhat anemic but has gained in body weight. There is no edema. The urine shows a small amount of albumin and a few leukocytes and casts. The percentage of urea is 3.3 which is rather high. (See chart.)

From my observations in this case and in other cases which have come under my observation, I should be willing to advise inspection of the kidneys through lumbar incision in cases in which an acute nephritis, not secondary to heart lesions does not clear up in a reasonable time, say six months, and would furthermore advise decapsulation of one or both kidneys should they appear swollen and enlarged, with the hope of preventing acute nephritis from becoming chronic. I propose to keep this child under observation and hope to be able to report an improvement of its condition at our meeting next year.

MONTH OF FEBRUARY, 1902.

	Day of month..	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	May 20
Temp.	A. M. 6... P. M. 6...	98 ⁶ 99 ⁶	98 99 ⁶	98 ⁸ 99 ⁶	98 ² 98 ⁴	98 ² 98 ⁴	98 ⁸ 99 ⁶	98 ² 98 ⁴	98 ⁸ 99 ⁶	98 ² 99 ⁶	98 ⁸ 99 ⁶	97 ⁸ 99 ⁶	97 ⁶ 99 ⁶	97 ⁴ 99 ⁶																	
Pulse	A. M. 6... P. M. 6...	100	104	96	90	90	90	90	92	92	92	92	96	102	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92		
Resp.	A. M. 6... P. M. 6...	28	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
Stools	number, 24 hrs.	24	24	24	24	24	24	24	28	28	28	28	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24		
Urine	Quantity, 24 hrs.	+ xxv	+ xxv	i xxviii	i xxviii	i xxxiii	i xxxiii	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi	i xxxi				
Reaction.....	ac	101.8	102.0	101.9	101.8	101.0	101.4	101.5	102.2	101.7	102.0	101.8	102.5	103.3	102.6	102.9	102.0	101.6	101.5	101.2	101.4	101.6	102.1	102.7	102.7	102.7	102.7	102.7			
Spec. grav.....		1.4	1.1	1.3	1.2	1.4	1.7	1.5	1.9	1.4	1.4	1.5	1.8	2.1	2.1	2.8	2.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Urea.....		20%	.1	.15	.1	.15	.1	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15	.15		
HNO ₃																															
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Renal casts.....																															
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Chlorid 1.7%. Leukocytes few. Renal epith.																															

Three Months after Operation.

CHART OF CASE OF RENAL DECAPSULATION.

ANALYSIS OF HUMAN MILK THE BASIS OF THE ARTIFICIAL FEEDING OF INFANTS.*

BY ARTHUR V. MEIGS, M.D.,

Philadelphia.

On February 22, 1882, a little more than twenty years ago, I read before the Philadelphia County Medical Society an essay on "Milk Analysis." Subsequently I issued various publications upon the same subject and on that of infant feeding. In the course of my studies of the two subjects, which, from their nature are related to one another, I reached two important conclusions. First, that human milk never contains more than about one per cent. of casein; and, second, that the food of infants ought not to be changed in strength from month to month, as is commonly done. The amount of food should be increased, but no change should be made in its strength nor in its composition from the time an infant is born until it is from six to nine months old. The first conclusion was, of course, attained from milk analysis alone, while the second forced itself upon me during my investigations in analyzing human milk and as a result of what I observed in artificially feeding infants. The two propositions are of the utmost simplicity; but the question whether my position is correct will have to be ultimately decided by practising physicians. Physicians often take the ground that they are not expert chemists, and that they cannot decide questions of chemistry, and my two propositions belong to that branch of science. It often happens, however, that the final decision of intricate scientific questions rests with manufacturers who are entirely without expert knowledge. A man of science announces a conclusion in regard to some question that bears upon the manufacture of a product of importance to the world of trade. The court of last resort is constituted by the manufacturers, who are quite ignorant of pure science, but who test the correctness of the conclusion by their efforts to improve their methods of manufacture. In a similar way the correctness of my two propositions must be ultimately

* Read before the College of Physicians, Philadelphia, May 7, 1902.

passed upon by practising physicians who will judge them by the results they obtain in artificially feeding infants, which is not unlike manufacturing. The questions how much casein is contained in human milk, and whether the milk of the human female changes in composition from month to month during the course of lactation, have no practical interest except in as far as their solution can help to teach the best method of artificially feeding infants. For fourteen years I worked constantly in this field, but during the past six years I have left the subject almost entirely in the hands of others. I return to it now for the purpose of trying to get the two questions I have set forth brought to a state of stable equilibrium, which at the present time they are very far from having attained. I shall endeavor to abstain from much discussion of other points than the two especial ones, although there are many which are both of interest and of practical importance.

To make myself clear it is necessary for me to say that I shall speak of the nitrogenized element of milk as casein. This is the old term, and it seems to me to describe what is meant as well as the words proteids, albuminoids, or any other one of the more modern names that have been introduced. The material is probably complex, and it will hereafter be shown, if this has not already been done, to be composed of several substances which are more or less dissimilar. Until its nature is better understood it is necessary to have a single term by which to designate it.

The conclusion that human milk never contains more than about one per cent. of casein was, as far as I know, original with me, and it was announced, as has already been said, twenty years ago. The correctness of this conclusion, which has had very far-reaching effects upon the principles of the artificial feeding of infants, has never, I think, been much disputed. Minor differences of opinion have been expressed, but the broad generalization that human milk never contains much more or much less than one per cent. of casein has been almost invariably accepted. It was only after I had spent a great deal of time in studying the literature of the subject and had analyzed many specimens both of human and of cow's milk, and of condensed milk, that my conclusion in regard to the proportion of casein in human milk was reached and the result announced. The older students of physiological chemistry made many analyses of milk, and the literature of the subject is extensive and will be found in several lan-

guages. I have examined treatises in French and in German as well as in English, and of the older literature I think the French is the best. The *Traité de Chimie Pathologique*, par Becquerel et Rodier, Paris, 1854, for instance, is an admirable work. In all of the older published analyses of human milk there will be found to be the widest differences in the estimates of the amounts of casein and of sugar, while in regard to the amounts of the other three constituents—water, fat, and salts—there is practically no difference. The science of chemistry is in possession of such reliable methods of ascertaining the amounts of water, of fat, and of salts in milk that the results obtained can be depended upon to be exact. There is not now and never has been any difference of opinion in regard to the quantities of these three constituents contained either in human or in cow's milk.

The sum of the amounts of casein and of sugar in human milk is about eight per cent. In the analyses that have been published no difference of opinion is found in regard to this sum, but when the separate estimates of the casein and of the sugar are studied the widest divergence is found in the various conclusions. Dolan and Wood give an analysis in which the casein is set down at 7.005 per cent. and the sugar 1.921 per cent., while Quevenne estimates the casein to be 1.05 per cent. and the sugar 7.31 per cent.¹ Other physiological chemists have published analyses in which the variety of conclusion in regard to the amounts of the two elements is almost infinite, except that they all agree that the sum of the two is about eight per cent. What I have said has shown that the difficult part of milk analysis is the separation and the estimation of the casein and of the sugar. The other three elements—water, fat, and salts—are generally separated first, and the residue containing casein and sugar is dealt with last. Of the difficulties that are encountered in separating these two constituents of milk I might say a great deal, but this would lead me into a consideration of questions that belong so entirely to chemistry that too much time would be consumed, and the discussion would not be likely to be profitable. It was not long after I began to study the subject of milk analysis before I reached the conclusion that it was in the estimation of the casein and the sugar that lay the difficulty of the subject, and, further, I soon came to believe that many of the analyses of human milk that

¹ Arthur V. Meigs. "Milk Analysis and Infant Feeding," p. 40. P. Blakiston, Son & Co., Philadelphia, 1885.

had been published were incorrect. My own researches led me to believe in the correctness of the observation of Wanklyn, that milk is a fluid exhibiting great constancy of composition, and if this be true it follows that the great differences of the estimates of the amounts of casein and of sugar can only be explained by the conclusion that many of them are incorrect. If the various methods of analysis that have been employed for the separation of these two elements are studied the conclusion is unavoidable that many of them are incapable of yielding scientifically accurate results. This subject I shall not now fully discuss, for I have already done so in some of my essays, and I shall allude to it again in this one.

There is little cause for surprise that the estimates of casein and of sugar should be incorrect in many of the older analyses, but it does surprise me exceedingly that students of milk analysis and of infant feeding continue to publish analyses of human milk in which the casein is rated at high percentages. If such analyses ever are scientifically accurate, then it follows as a corollary that my conclusion published twenty years ago, that human milk never contains more than about one per cent. of casein, is incorrect. As has already been said, the essential accuracy of this conclusion has never been seriously disputed, and yet it does not seem to be generally perceived that if it is correct it is quite as impossible that specimens of human milk should sometimes be found containing large percentages of casein as that human milk should occasionally contain only forty per cent. of water, and this everyone knows is impossible. The reason probably that the fallacy of the position of believing in my doctrine of the invariably low percentage of casein in human milk, and the acceptance at the same time as correct of analyses rating it high, is to be found in the fact that few persons who have dealt with the subject are both chemists and clinicians. The question has generally been studied by two sets of observers who approached it from totally different points of view, and the result has been the accumulation of two sets of facts that have very little natural relation to one another. The chemists have been working at one part of the problem and the clinicians at another, and the two have never been able to bring themselves into intimate relation. What I wish to state, and to state most emphatically, is that the accuracy of my conclusion that the casein in human milk is invariably of low percentage is quite incompatible with the accept-

ance as correct of the analyses which rate the percentage of casein high. Many of the essays published upon infant feeding, and even some of the text-books contain analyses of human milk, but include no explanation of the methods that were employed in making the analyses, and even the names of the analysts are withheld.

It has been my endeavor to avoid as far as possible the introduction into this essay of purely technical questions of chemistry and to include only such things as may appeal to those who are interested in the clinical side of the subject, and especially in the artificial feeding of infants. In order, however, to make myself comprehensible in regard to an important point, it will be necessary for me to say something about the chemical methods ordinarily used in analyzing milk. I have already said that the only difficulty is in estimating the casein and the sugar, and that the differences of opinion in regard to the composition of milk are only as to the amounts of casein and of sugar. The water, the fat, and the salts are easily dealt with, and, therefore, I shall say nothing about the chemical methods by which they are determined. It is after the amounts of these three elements have been ascertained and the chemist is left with a residue which for all practical purposes may be said to consist of nothing but casein and sugar, that the real difficulty in the analysis of milk is encountered. Almost all of the published analyses have been made by determining the amount of sugar in the residue and then rating the amount of casein by difference. To make myself perfectly clear, this is what has been done. A residue consisting of casein and of sugar, which may be represented by the figure eight (for I have already shown that the sum of the amounts of casein and of sugar in human milk is about eight per cent.), is tested to ascertain how much sugar it contains, and then it is assumed that whatever is left is casein—that is, if an amount of sugar represented by the figure seven is obtained it is assumed that the casein amount is one. This estimation of the casein by difference has always seemed to me to be most inadequate and unscientific. It is not necessary that one should be a practical chemist to perceive the opportunity for error introduced by the use of such a method, for it is patent to everyone. It is this: if all of the sugar is not extracted from the residue consisting of casein and of sugar, as much sugar as is left behind is thrown in with the casein, and the casein amount is overestimated by that quantity. Long ago I

made up my mind that conclusive results could never be looked for from any method of analysis that determined one of the five elements of milk by difference.

One more statement, and I shall have finished with the purely chemical side of the question. Almost all of the analysts of milk have availed themselves of the copper-reduction method for the estimation of the sugar. It is beyond question that this method is reliable for the estimation of cane sugar when used along known lines, and when there is abundant opportunity to test and prove the accuracy of the results obtained. For estimating the amounts of milk sugar the copper-reduction method has been comparatively little used except in analyzing milk, and milk sugar is a substance which presents differences in its chemical attributes and reactions from cane sugar. If it be recollected that the copper-reduction method when applied in milk analysis is expected to determine accurately the amount of milk sugar in a residue containing at least one other organic substance (casein), in regard to the chemical reactions of which little is known, it will not be thought rash of me to question the reliability of the analyses made in that way. When it is further recollected that the casein is determined by difference alone, and that any error made in regard to the amount of the sugar necessarily entails a corresponding inaccuracy of the estimate of the casein, it becomes evident that the findings of such a method should only be accepted after they have been in some way proved.

The climax of this part of my subject is reached when I state that although the results of my analysis of human milk were published twenty years ago, and although their substantial accuracy has never been seriously called in question, no one, as far as I know, has ever made a single analysis by the method that I devised and described. The method is of the utmost simplicity, and is based upon that well-known attribute of casein, its coagulability by heat. By my method each one of the five elements of milk is separately determined and is weighed by itself. In order to test the accuracy of my conclusions in regard to the amounts of casein and of sugar I have had my pure sugar at the end of an analysis tested to ascertain if it contained any casein, and *vice versa* the pure casein tested for sugar. This is described in full in my book on *Milk Analysis*. My method is troublesome in one respect, it is very tedious, for it takes about three weeks to make one complete analysis. This, it seems to me, should be looked

upon as a small matter in comparison with the importance of obtaining accurate results. It is from the results obtained by the analysis of human milk only that any general agreement can be attained with regard to the principles that should govern us in the artificial feeding of infants, and upon this depends year by year a multitude of human lives.

There is only one possible source of error that I can think of connected with my method of milk analysis, and it is that there may exist in milk some undiscovered nitrogenized substance which is uncoagulable by heat. If such a substance does exist it would be included with the sugar. It is for the future to decide, however, what the real nature of that element of milk is which has been heretofore called casein, or, if the names be better ones, albuminoids or proteids.

The second important practical conclusion that I have announced is that in artificially feeding infants the strength of the food should not be increased from month to month, as is generally directed. My own advice has been to use the same food from the time an infant is born until it is six to nine months old, but to gradually increase the amount. Most of the older analysts state that human milk increases gradually in strength during the progress of lactation, and it would appear that this statement has been pretty generally accepted as correct. The natural way to decide the question whether the food of artificially fed infants should be increased in strength, or if the strength should remain the same and the amount of food be increased as I have described, is to make analyses of human milk at various periods of lactation and learn whether it does increase in strength as time goes on. Afterward the final judgment will rest with clinicians, who will test the accuracy of the conclusion in practice. The question is difficult to decide only because of the uncertainty that remains in regard to the whole subject of milk analysis. No method of analyzing milk, as far as concerns estimating the amounts of casein and of sugar, has been shown to be certain in the same way that the results of the analysis of metallic ores are known to be certain. Until a method has been discovered and accepted which will yield results whose accuracy are beyond question there will always remain some difference of opinion.

When I was making analyses of human milk it of course happened that I obtained specimens from women who were at different periods of lactation, and it very soon struck me that there was

no difference in the composition of the milk, whether the woman was in the early, in the middle, or in the last stage of her lactation. With the exception that there are differences in the amount of fat, all of the human milk I have ever analyzed has exhibited that constancy of composition that I have already said is one of the attributes of milk. It is not intended to say that milk does not show some difference from its ordinary state during the first few days of lactation when the colostrum is present. This is a subject which I have not personally investigated, as all of my analyses were made of the milk of women whose infants were already at least several weeks old, for my purpose was to obtain such an understanding of the composition of human milk as would help me to learn how to feed infants artificially. It may be almost positively stated as a fact that the milk of cows does not increase in strength from month to month, as it has been so commonly, and it seems to me upon insufficient evidence, supposed that human milk does. If cow's milk does not change in composition during the progress of lactation, from analogy it would seem to be unlikely that human milk does so change. As soon as I had decided in my own mind that human milk does not increase in strength during the progress of lactation I determined that in artificially feeding infants I should not change the strength of the food, but would increase the amount as the infants grew older. The manner in which this should be done is a subject that it is undesirable now to open.

In artificially feeding infants I have had such entirely satisfactory results when I have used a food of the same composition from the beginning until the infants were past six months old that I am fully convinced it is the best method that can be pursued. The question whether the food of artificially fed infants should be changed from week to week or from month to month is a very important one, and it is astonishing to me how little interest it has appeared to excite. Although I published my conclusions many years ago, and although in subsequent publications I have frequently announced my continued adhesion to my original opinion, the subject is hardly ever discussed in the essays of any of those who write upon it.

In conclusion I will recapitulate briefly what I consider to be the important points of my theme, and will try to indicate what may be done to secure better results from the artificial feeding of infants.

First, in regard to the analysis of milk, and of human milk in particular. As it is twenty years since I published a description of my method of analysis, and my conclusion that human milk never contains more than about one per cent. of casein, I think it ought not to be considered too much to ask that the portion of the scientific world interested in the subject should have my method of analysis tested and the question decided whether my conclusions have any value. It is the more necessary that this test should be made, because if my method of analysis is reliable it certainly follows that many of the analyses published are incorrect. If a thorough test should prove my method to be reliable, it would necessarily follow that my conclusion in regard to the invariably low percentage of casein in human milk is also correct.

Second, it ought to be decided whether it is best that artificially fed infants should have the strength of their food increased at frequent intervals, as is generally advised. This question can be decided only after many more analyses have been made, and made by a method of proved reliability. Afterward the relative merits of the two systems, that of changing the strength of the food and that of using the same food but increasing the amount, must be put to the test of experience. (*Discussion on page 768.*)

Menthol in the Treatment of Cough.—According to Sanger (*Therapeutische Monatschrift*, July, 1901), menthol is a valuable remedy in the symptomatic treatment of cough. It is a nontoxic anesthetic and calms the irritation of the air passages as well as does morphin. A few crystals of menthol are placed on a spoon and heated over a lamp or stove for from five to twenty seconds. In this way a sufficient amount of menthol vapor is produced for the patient to inhale. A solution of menthol in alcohol, in the strength of from 40 to 50 per cent., may also be used, from ten to twenty drops being placed in the hollow of the hand and thus inhaled. In order to remove the mucus which lines the bronchi and sometimes interferes with the action of menthol, injections of mentholated oil may be given, thus evoking a cough which serves to remove the mucus.—*New York Medical Journal.*

THE EFFECTS OF ACID FERMENTATION UPON THE CURD OF MILK.

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As a factor in infant feeding the writer believes the precipitation of the curd of cow's milk, in digestion, has not received the attention its importance deserves.

It is generally understood that when acid is added to cow's milk in a test tube the curd is precipitated in heavy masses much larger than the curd of woman's milk when treated in the same manner. Rotch¹ has experimented with cow's milk by adding ten drops of acetic acid to a certain quantity of milk and his results show a uniform size of curd, depending upon the degree of dilution of the proteid elements of the milk present. A possible criticism of this method of experiment is that in normal digestion the proteid elements of food are subjected to a gradually increasing quantity of acid and, according to Hemmeter² the full supply of acid, in the adult, is not secreted until an hour or an hour and a half, after the entrance of food into the stomach; the action of the gastric juice is therefore gradual and continued.

That there is a very great difference in the size of curd of cow's milk and woman's milk no one denies, but the writer believes a precipitation of the curd by a fixed quantity of acid is not a fair criterion as to the precipitation of the curd during digestion. When acid is added to milk slowly, the precipitation of the curd is not as rapid and the curd is not as heavy and solid as when acid is added quickly. In a paper read before the Connecticut Medical Society in 1897³ the writer detailed a series of experiments upon cow's milk, in which the size and rapidity of formation of the curd seemed to depend upon the degree of acidity of the milk employed. In these experiments pure hydrochloric acid was added to cow's milk and also a .02 per cent. solution of hydrochloric acid, representing the usual amount present in normal gastric juice. The acid was first added to the milk in sufficient quantity to cause a precipitation of the curd and to a second specimen dilute acid was added.

The results of the experiments were as follows: (1) Whole milk, acid in reaction, treated with pure acid gave a larger and heavier curd than when tested with the weak solution of the acid and the precipitation was more rapid. (2) Milk diluted one-half, tested with pure acid precipitated the curd more quickly and in heavier particles than when treated with the dilute acid. (3) Pasteurized milk, slightly acid, gave a finer and softer curd than raw milk with pure or dilute acid. (4) In new clean milk, properly cooled and bottled, precipitation was slower and the curd finer than ordinary milk, when an acid fermentation was present. Cow's milk, twenty-four hours old, will react to less acid and more quickly than new milk. Milk curdles more quickly and the acid is heavier, when acid is added quickly than in adding the same quantity of acid gradually. That is, in a given time, more casein would be precipitated by a strong acid than by a weak acid.

While any test tube experiment cannot be applied absolutely to the normal chemical action of the stomach, we may often obtain suggestions of value, and therefore the following further experiment was tried. Instead of hydrochloric acid, fresh gastric juice was employed to precipitate the curd with results confirmatory to the foregoing deductions: A healthy adult was given Ewald's test breakfast and this was removed after one hour and filtered. The acidity of the filtrate was 40. One c.c. of this filtered gastric juice was added to 4 c.c. of milk, or less than 1 c.c. if the precipitate was obtained, at a temperature of 100° F. The milk employed in the experiment was pure certified milk, twelve hours old with a total bacteria count of 3000, and also healthy human milk, less than one hour old. The method employed was as follows: Four test tubes were prepared, each containing 4 c.c. of milk.

Tube no. 1 contained breast milk, alkaline in reaction. Tube no. 2 contained cow's milk, slightly acid in reaction. Tubes no. 3 and no. 4 contained human milk and cow's milk which had been exposed at a temperature of 74° F. for twelve hours in a cow stable four feet from a cow. Both were acid in reaction, the cow's milk strongly so but neither sour to the taste. Bacteria not counted.

To these four specimens the gastric juice was added until precipitation of the curd occurred with the following results: Tube no. 1. Breast milk; very fine slowly forming curd. Tube

no. 2. Fresh cow's milk; coarse curd forming more rapidly than no. 1, but loosely held together. Tube no. 3. Fermented human milk; curd heavier and more fully organized than no. 1; formed quickly; loose and easily disturbed. Tube no. 4. Fermented cow's milk; curd formed quickly and larger and heavier than no. 2, but did not form a compact mass.

Microscopical examination of resulting curd. no. 1. Finely divided emulsion like curd. no. 2. Heavier emulsion with numerous clots. no. 3. More clots than no. 1, and occasional masses of organized casein. no. 4. Much heavier and larger clots than no. 2.

After allowing the test tubes to stand three hours in the heat of the room, about 80° F., with occasional stirring the remaining residue in the tubes were: In no. 1. Very slight. no. 2. Much more than no. 1. no. 3. More than no. 1. no. 4. More than no. 2.

While these experiments may have been somewhat crude in their execution they indicate that the purer and fresher the milk the smaller the curd and therefore the easier digestion of the curd.

The curd is not actually smaller, but the precipitation in a pure milk, containing little lactic acid, is so much more gradual than in a strongly acid milk, in effect the curd is smaller because more loosely organized. In other words the acid coming in contact with an alkaline, or very slightly acid milk, has to transform acid alkaline to an acid medium before the precipitate occurs, and the resulting curd is more gradually formed. On the other hand, an acid operating in an acid medium, the results would necessarily be rapid and more fully organized.

It seems to me also this result is verified clinically. In inflammatory conditions of the stomach, where there is hyperacidity, the curd of milk is large and tough. Babies can digest a stronger milk in winter, when there are fewer bacteria and less acid milk, than in summer; babies in the country, where milk is obtained fresh twice a day, are less liable to digestive disturbances than city children who are fed upon milk at least twenty-four hours old. The modification of milk in the country is not nearly so difficult as in the city. In the city where certified milk is employed the results are better than with ordinary milk.

In breast feeding the child receives its nourishment gradually and usually ten or fifteen minutes are taken for a meal and the milk is acted upon in the stomach, gradually. In bottle babies the

milk comes from the nipple so rapidly that unless the coagulation of the curd is in an alkaline or slightly acid medium, or some attenuant is employed the precipitation is rapid. Holt⁴ says the protein elements of milk are more difficult to digest than the fats and it is often necessary to begin with very low percentages. These experiments indicate one reason why that might be so.

To the writer there is a very great difference between a modification of 3 per cent. fat and 1 per cent. protein when the milk modified is perfectly fresh and pure than the same formula made up of a milk which has undergone an acid fermentation. In very delicate children even a slight degree of acidity would render the casein indigestible. Fischer⁵ says: "the hard coagulum of cow's milk that sometimes forms in the infant's stomach is due to acidity of that organ, and this acidity is not always the fault of the stomach *but of the milk itself.*"

As a basis for modification most authors say average cow's milk contains 3.50 fat, 4 per cent. protein and 4.30 per cent. sugar, and this is to be changed to resemble average human milk which contains 4 per cent. fat, 1.50 per cent. protein and 6 per cent. sugar. Individual analyses vary greatly from this average and the task is often very difficult to even approximate woman's milk. Why is not the fermentation usually present in cow's milk one important reason for that difficulty? Hauser⁶ gives eleven examinations of milk by different chemists and all vary materially in the amount of protein found in woman's milk.

With the wide variations in individual cases the approximating of the protein of cow's milk to the protein of woman's milk becomes a difficult problem, but if the deductions of this paper are correct the problem is solved, to a considerable extent, in the kind of milk we employ in our modifications. The improvement of the future must come through a better milk supply and the writer is strongly of the opinion that when we can have at our disposal a milk free from acid fermentation the results in infant feeding will be better than they are at present.

75 PRATT STREET.

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A NEW SIGN OF PLEURITIC EFFUSION IN CHILDREN.*

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All the common diseases have passed under the searching glances of physicians during so many hundreds of years that at this late date it is with some diffidence one ventures to think he can have possibly, by the old methods of clinical study, come upon a new observation. And yet Bacelli's sign, and Skoda's resonance, and Kernig's sign in meningitis, and many another that one might mention long passed unnoticed. For instance, it was late in medical history that Koplik's sign in measles received any attention.

Now it may transpire upon close searching of the literature we may find that, like Koplik's sign, the new semeion of which I shall speak has been observed and described by a number of physicians before me. However I have never yet found any allusion to this sign (or symptom, if you prefer the word) of pleural effusion.

I first observed the symptom a number of years ago but did not venture to offer it to the profession until three years since. In a paper entitled "The Semeiology of the Attitude and Motor State in Children" presented to the Section of Diseases of Children at the meeting of the American Medical Association at Columbus, June 6-9, 1899, I mentioned this sign briefly. After alluding to the well-known fact that the child attacked with pleurisy usually prefers to lie upon the affected side, I said: "But if the pleura becomes distended with fluid, the child may turn and prefer the dorsal decubitus." The essay mentioned, as well as that particular paragraph of it, was perhaps assumed by readers to be entirely a compilation, for I took no pains to draw attention to certain points then for the first time offered to the medical public. Therefore I present this one at more length.

We are accustomed to recognize pleurisy by the following

* Read before the Ohio State Pediatric Society, Toledo, May 27, 1902.

symptoms and physical signs which I shall rehearse for the purpose of making myself clear. There may or may not be prodromata and an initial chill or chilliness; or the disease may come insidiously. But the typical case comes with chilliness followed by fever and pain in the side (mammary or axillary region or even the abdomen or back), and cough. Then there is dyspnea and the patient lies upon, or bends toward, or presses upon the affected side. There is impaired mobility of the affected side, and if there is a large effusion measurement shows that side distended. The intercostal spaces are obliterated, and the apex beat displaced. Tactile fremitus is diminished or lost, and vocal fremitus also is lost. There is flatness on percussion, a very flat flatness if I may so describe it, over the seat of effusion—and possibly the flatness may be shifted by change of position. Above the flatness there may be a dullness—over the compressed lung—or there may be Skoda's resonance. The friction rub that may have been felt before the effusion, is gone when the fluid separates the inflamed surfaces; and the respiratory murmur becomes distant or weakened, or, perhaps, even entirely suppressed or replaced by tubular breathing.

The semeion to which I wish to direct your attention is simply this: In the course of symptoms which indicate the early stage of pleurisy, among which is the attitude of lying upon one side or bending toward, or pressing upon one side—this position changes and the patient instinctively turns and prefers to lie upon the back or to be propped up high in bed, and avoids bending toward that side or pressing upon it. This is a sign of effusion—probably of an effusion of considerable bulk, and poured out with a degree of rapidity.

I have observed this again and again; and while I am not prepared to say it is constant in its appearance and infallible in its significance, I believe it is as reliable, as for instance the symptom of lying upon the affected side in the beginning of pleurisy, or perhaps as the flexing of the thighs in peritonitis and other signs that are generally regarded as significant.

The sign may not be invariably present but when it does appear it is of some value. Sometimes in case of large pleural effusion with the patient choosing the dorsal decubitus you may empty the pleura by aspiration, after which the patient will turn and voluntarily lie upon the affected side. But if the fluid rapidly

re-accumulates, the child will again roll over upon the back. You may aspirate a second time, and if the fluid collects again you will again see the same change of attitude repeated. Usually I do not approve of repeated aspirations (as a therapeutic measure), but I have sometimes made them thus to experiment upon their effect in changing the instinctive attitude of the child.

You have probably held the opinion usually taught, and expressed for example by Osler who says: "When the effusion is large the patient usually prefers to lie upon the affected side." But I beg of you to note the fact in such cases whether the effusion is not one of long duration. In such cases as I have seen of patients with large effusions *preferring* to lie upon the affected side, the effusion has existed so long that apparently a tolerance of the pressure of the fluid has been established. The time for the sign I describe has passed in such cases and I would no more expect to find it than I would to find friction rub after the effusion has arrived. Similarly, as you are aware, the dyspnea which is such a marked symptom of a sudden large effusion will disappear later, and the patient not suffer from shortness of breath as long as he remains quiet. This same tolerance of accommodation is seen when the effusion comes very gradually.

The most rational explanation I can offer for the sign I have described is, that lying upon the back or sitting up causes the least pressure of the effusion against the compressed lung and the heart and great vessels, and allows the greatest freedom of breathing and circulation. If the child lies upon the affected side the weight of the body upon the chest wall presses the fluid still more upon the compressed lung, and increases the dyspnea and perhaps interferes more with the action of the heart, and, instinctively, the child changes to an easier position. To lie upon the sound side would interfere with the respiratory movements of the sound lung, and increase the dyspnea. This leads the patient to involuntarily avoid that position. But to lie upon the back takes the pressure off the more yielding ribs and allows the most freedom of respiratory movement and least displacement of or pressure upon the blood organs. So this attitude is often chosen, though a child will sometimes prefer to be propped up or to sit up.

It is doubtless true that even a small effusion, provided it be enough to separate the inflamed surfaces will by that means ease the pain and thus lead to an abandonment of the position on the side (which best limited the respiratory movement and thereby

suppressed the pain). But the change of attitude that follows an effusion is not always a mere abandonment of the position that prevented movement and eased the pain. It is sometimes the assumption of a new position which allows greatest freedom to the compressed viscera and eases the breathing and circulation. One has seen this relief of pain, procured perhaps by opiates and perhaps by the effusion, mistaken for a cessation of the disease. But the doctor should not fail to note what new posture the child has assumed.

Given a case of pleurisy with effusion in an adult, with the usual symptoms and physical signs demonstrable, the diagnosis is a simple matter. Those physicians will best appreciate and welcome any new sign indicating this condition who are familiar with the practical difficulties of its diagnosis in children. For example, young children do not locate the pain well. A physician is not always called early enough to find the friction sound. The rapid breathing may be influenced as much by the nervous condition resulting from fever and toxemia as by compression of lung. Displacement of the heart beat may be hard to demonstrate, especially in right-sided effusions. Even the exploring needle which some have called the never-failing means of diagnosis—may fail to bring the fluid—even when fluid is present. Besides one likes to be reasonably sure of finding fluid before he proceeds to explore with a needle. That simple little procedure is not always readily consented to by the parents nor submitted to by the child: and a "dry tap" is always as much of a disappointment as a successful puncture is a vindication and a triumph. Percussion a little too heavy may bring out a tympanitic note from a more distant viscus, even where an effusion is present; while a light stroke fails to elicit the sense of resistance that a fluid should give. The absence of vocal fremitus which constitutes one of the most reliable signs of fluid is hard to demonstrate voluntarily in children, who often will not obey a command to use the voice, and may be even too contrary to cry at the only time that act would be desirable. On the other hand, in children, vocal fremitus may be present with a considerable effusion. The sign of shifting dullness is hard to get in children, owing perhaps to the greater elasticity of the thorax and its contents, or to the fact that the fluid is encysted; and besides the dullness of bronchopneumonia will at times shift so unaccountably as to leave one in doubt. Weakened or distant respiratory murmur with loud tubular sounds, due

to fluid effusion, sometimes mislead one into a diagnosis of consolidation with a cavity. Occasionally a child is so willful and unruly that a satisfactory examination of the chest is quite impossible, and one is almost obliged to content himself at a respectful distance with inspection of the patient's attitude and the shape and movements of the thorax.

Knowing these difficulties and uncertainties one is glad of any new guide that may help him find the right road.

Does the sign I have described indicate anything else than effusion? For instance is it a symptom of consolidation of lung? I think the sign indicates an effusion. I do not find it typical in pneumonia. The child with pneumonic consolidation may lie upon the back, but it does not make the marked change from the lateral to the dorsal position; and it does not refuse the lateral position.

I do not believe pressure upon consolidated lung is transmitted like pressure upon a collection of fluid; and there does not seem to be the tension present in a consolidation as in an effusion. Corroborative evidence of this appears in the fact that the inter-spaces are not obliterated in case of pneumonic consolidation however extensive, as they are in a large effusion.

In cases in which the patient prefers to sit up or be propped up rather than to lie upon the back, especial care should be taken to exclude pericarditis with effusion.

As to whether the sign is present in adults I do not know. I have only observed it in children. But I doubt whether it would be produced in a patient whose thoracic walls were too rigid to yield to the weight of the body.

Mustard Applications Undesirable in Infantile Convulsions.—Professor Ausset, of the University of Lille (*Echo Médical du Nord*, April 20, 1902) considers that mustard baths, sinapisms, mustard foot-baths, etc., are dangerous measures to employ with a patient whose nervous system is already in a state of superexcitation, and that it is better to avoid them. In tepid baths or baths at about 82° F., chloral, and chloroform, we possess an ordinarily sufficient armament without having recourse to measures capable of reacting against the patient.—*New York Medical Journal.*

ARCHIVES OF PEDIATRICS.

OCTOBER, 1902.

EDITED BY

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

TREATMENT OF ENLARGED CERVICAL LYMPH NODES.

Most of the enlargements of the lymph nodes of the neck, that run a chronic course, are due to the invasion of tubercle bacilli. At the present time there is a special interest in the therapeutics of tuberculous conditions especially with reference to the prevention of the spread of localized lesions that may make the affection fatal. The consensus of authoritative opinion is not however in favor of radical measures for the removal of all tuberculous foci but rather in the direction of a more active, conservative treatment than has been hitherto employed, with the idea of enabling nature to dispose of the pathologic process in her own

effective and cosmetic way. It is very difficult to be sure of having removed all the infected tissue so as to make the operation really radical, and if but a slight amount of infectious material is left it finds a very favorable soil for growth after the operation. Besides, the patients are seldom in a condition to react well after operation, as healing is prone to be slow and this gives opportunities for secondary infections.

We are just feeling the effect of a decided reaction against active surgical intervention for the cure of tuberculous processes. Conservative surgeons prefer to leave cold abscesses absolutely untouched unless there are constitutional symptoms that seem seriously threatening. Tuberculous joints are operated on with much less frequency than formerly, and surgeons now refuse as a rule to attempt the extensive resections by which a few years ago it was hoped to remove all the tuberculous foci present. Even with regard to tuberculous peritonitis there has been a very decided change of surgical opinion in recent years, and at least one excellent German authority in surgery declares, that "this affection must now be handed back to the internist by the surgeon, with thanks for the opportunity to study the progress of tuberculosis in a large serous cavity, but with apologies for having assumed the treatment of an affection for which surgery has proved of only illusory benefit." In this country that surgical intervention in tuberculous peritonitis cannot always be regarded as curative was shown by the discussion at the recent meeting of the American Pediatric Society. The members of the Society seemed to accept operation as harmless but they did not express themselves as feeling it to be imperative or radical.

It is not surprising then, to find surgeons counseling expectant treatment for enlarged cervical lymph nodes. Of course if lymph nodes show signs of having actually broken down the detritus should be evacuated but this must be done with as little surgical interference as possible. On the other hand certain indirect methods of surgical treatment have recently found favor. The cervical lymph nodes become infected by ma-

terial that finds an entrance through the mouth and pharynx. The more of this material that finds its way to the cervical lymphatics the more danger there is of the nodes becoming overpowered by infection and breaking down. The first thing then should be the closure of all possible avenues of entrance. Adenoids in the pharynx should be removed. Enlarged tonsils should be amputated, especially if they have the wide open follicles and the tendencies to infection so often seen in these cases. The teeth should be carefully looked to and all carious teeth removed or treated by an experienced dentist who is warned of what it is desired to accomplish. Finally, the throat and nose should be kept as scrupulously clean as possible.

Secondary infection is almost more important than the existence of the primary tuberculous focus. There are many conservative authorities who insist that tissues never break down from the presence of tubercle bacilli alone and that it is only when other microorganisms have succeeded in gaining an entrance to already infected tissues, that softening and active pus formation takes place. It is very necessary then to guard against the possibility of secondary infection. Hence the external skin must be kept in a state of most thorough cleanliness and, as far as possible, any tendency to the formation of acne pustules or similar lesions obviated. The presence of pediculi or of eczema of the hairy scalp should be looked for and their well-known tendency to produce enlargements of the post-cervical lymph nodes guarded against.

With regard to the enlarged lymph nodes themselves direct treatment seems to be scarcely more than a placebo. Iodin does not hasten resolution unless the patient is just undergoing that alteration of metabolism that enables nature to dispose of the offending material. For this patients must be put into better general condition. What is needed is not drugs but hygienic measures. The most important feature of the successful treatment of any tuberculous process is an abundance of fresh air. Experiments at St. Thomas Hospital in London, show that tuberculous patients do better when kept constantly on the balcony

than in the most airy room. In many of the German sanatoria for tuberculosis windows are kept constantly open even in the coldest weather. It is proposed to have a ward for consumptives in London that shall have no side walls at all only a series of pillars to support the roof. Air is just what the little sufferers from cervical adenopathy often lack most. They are thought to be delicate and are cuddled in close, warm rooms. Full oxygenation of the blood is our most powerful remedy for the inhibition of the tubercle bacillus. Air will also prove the best tonic and appetizer.

If children are anemic they should be given iron which, according to long standing clinical experience, is best administered under the form of the iodid of iron. The general nutrition must be kept up and cod-liver oil is an excellent food; in many cases children exhibit no dislike for it. If it creates disgust and so lessens the appetite for other foods cream may be substituted for it to decided advantage. Not infrequently it will be found that a condition of constipation is associated with the tendency to cervical enlargements. This must be carefully looked to for it is often an active factor in the anemia which is at the basis of the constitutional condition that permits the invasion of the tubercle bacilli. It is the regulation of the whole mode of life, not any single remedial measure, that holds out hope of cure for these chronic tuberculous conditions.

Congenital Perithelial Tumor. — Füth (*Beit. z. Geb. u. Gyn.*, VI., 1) claims that the tumor he describes is the only known example of its kind. It was in the gum of a girl baby two days old, and although it did not start in the enamel germ yet it had involved the latter in its growth. It was as large as a hen's egg and protruded from the mouth at birth. After its removal the teeth developed normally except the two upper incisors, which are rudimentary and gray in color. The child is now a healthy two-year-old. Six cases are on record of perithelial tumors of the ovary, of which three were malignant.—*Journal of the American Medical Association.*

Bibliography.

The Theory and Practice of Infant Feeding, with Notes on Development. By Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children at the New York Post Graduate Medical School and Hospital, etc. Illustrated. New York: William Wood & Co. 1902. Pp. ix.-326. Price, \$2.50.

Dr. Chapin approaches the subject of infant feeding from the side of biology and physiology rather than from the position of the chemist. In an introductory way he treats of the cell and its development, and he then passes to a consideration of animal digestion. He states that the milks of different animals are not interchangeable from a digestive standpoint. The food for an infant must contain material for cell building and it is necessary for growth that the food should be digested without undue effort. Reference is frequently made to the fact that cow's milk is not woman's milk and that no modification can change one to the other.

Prof. Conn contributes the chapter on the bacteriological examination of milk. His opinion that while milk that contains a small number of bacteria may contain pathogenic bacteria and thus be dangerous, nevertheless in the majority of cases milk which has been carefully handled will contain few bacteria and these are not likely to be pathogenic, is most important as indicating the advantage of proper handling of milk.

An important original contribution relative to the growth of healthy infants is made by Dr. Hrdlicka, whose tables have been prepared with great care.

Taken as a whole the book is a plea for the use of cow's milk with cereal diluents prepared in the nursery, and no attempt is made to advance theoretical suggestions for laboratory modifications in infant feeding.

The author has extended his well-known papers on gravity cream, top milk and dextrinized gruels, so that the volume is a valuable guide to the food value of milk and also of various articles in daily use. The book is eminently practical.

The volume attracts attention by the cross references, large print and good binding.

Progressive Medicine, Vol. II., June, 1902. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by **Hobart Amory Hare, M.D.** Illustrated. Philadelphia and New York: Lea Brothers & Co. Pp.vi.-440. Price, \$2.50 per volume; \$10.00 a year.

In this volume of Progressive Medicine Coley gives his opinion in favor of operation for perforation in typhoid fever. He accepts the conclusion of Fenger that the effect of laparotomy in tuberculous peritonitis is in many instances not curative as the tuberculosis continues. Stengel's section contains articles on diabetes, diseases of the thyroid and diseases of the blood that are described in this author's lucid and thorough manner.

A Case of Traumatic Incontinence of Urine Treated by Operation.—Dr. G. G. Voscresenski (*Chirurgia*, October, 1901). A boy aged thirteen years, who had undergone median lithotomy ten years previously, entered with a history of incontinence of urine, which had come on a year after the wound of the operation had healed. For the last two years he had been wearing a urinal. There was complete incontinence, due to injury to the vesical neck during the operation, the injury in question probably having been considerable, as a stone of the size of a hen's egg had been removed. Various methods of operation have been used to remedy this condition, but the following was used in this case: A perineal incision, similar to that used by Nélaton (Π-shaped) was made, and the scar tissue of the old operation exposed and removed, inasmuch as it was found to surround the posterior and lateral aspects of the membranous urethra and the neck of the bladder. The scar tissue was dissected out with the aid of a urethral guide until the urethral wall was exposed. A weak perineum and a prolapsed rectum were found as effects of the old operation. The wound was cleaned and the perineum was carefully restored. The result of this operation was the complete relief of the incontinence, as well as of the pro-lapse of the gut.—*New York Medical Journal*.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated meeting, Tuesday, June 10, 1902.

DR. SAMUEL MCCLINTOCK HAMILL, PRESIDENT.

DR. J. H. MCKEE and Dr. J. H. Gibbon exhibited a child of five years with

STRICTURE OF THE ESOPHAGUS AND TUBERCULOUS ABSCESS, in whom gastrostomy had been done with improvement. She had swallowed lye in September, 1901, and had subsequently been treated in a hospital for stricture of the esophagus, but had not improved.

When seen in the Polyclinic services of Drs. Gibbon and McKee, she had exhibited emaciation, a hectic flush, a harsh laryngeal cough, large mucous râles, and irregular vomiting of food and mucus; she also displayed the signs of consolidation at base of the left lung. After several negative examinations, tubercle bacilli were repeatedly found in the sputum. The emaciation continued and the temperature was irregular. It was determined, therefore, to subject the patient to the operation of gastrostomy. Following the operation, she had, for two months, been fed solely through the tube, with resulting gain in flesh, disappearance of the mucous râles, of the fever, and of the tubercle bacilli from the sputum; and almost complete cessation of the laryngeal cough.

The reporters believe that she had suffered from a retroesophageal or a postesophageal abscess, and feel that the case, from several standpoints, is quite unique. At a later date, an effort will be made to dilate the stricture.

DR. J. H. GIBBON said that Dr. McKee had described the points in the case which would appeal most strongly to the Pediatric Society, and that he would speak only of its surgical aspects. The diagnosis of stricture was quite certain before operation. Its exact site, however, had not been ascertained; and it

was thought that the passage of an esophageal bougie might be harmful, as an ulcerative process was believed to be going on at the site of the stricture. Locating the stricture was, therefore, deferred until the child was under ether, when a soft rubber catheter was passed into the esophagus; but when it had been introduced to a considerable distance, there was a sudden gush of pus, and it was necessary to withdraw the instrument quickly and was considered inadvisable to reintroduce it. The presence of pus at the site of stricture was sufficient evidence of the danger accompanying the passage of even a soft instrument. The abdomen was quickly opened, and a Kade gastrostomy was performed, this operation being chosen in preference to either the Sabanijew-Frank or the Witzel operation, because the fistula produced closes without difficulty. The child recovered well from the operation; and at the first change of the tube which was introduced, pus was found in the stomach. Dr. McKee had noted the striking improvement made by the patient, and—what is more remarkable still—the disappearance of tubercle bacilli from the material which the child coughed up. Dr. Gibbon thought that the ulceration of the esophagus and the abscesses in its neighborhood had about healed; and he intended, as further treatment, to dilate the stricture with bougies—passed through the mouth, if possible, or if this is impracticable, to divide the stricture and stretch it, according to the method of Abbe. The case illustrated well the principle of surgery that when an organ is the seat of a marked ulcerating process, nothing gives such prompt and satisfactory relief as putting the part completely at rest. The mere performance of a gastrostomy, in some of these cases of ulcerating stricture, will result in healing of the ulceration, without a marked constriction of the esophagus. The result obtained in the present case shows that the operation is warranted even in severe and complicated cases. A further complete report of the case will be made when treatment has been directed to the esophageal stricture.

DR. HAMILL asked at what distance from the mouth the stricture was encountered.

DR. GIBBON replied that he could not tell positively. He believed that it was low down, because before the operation there was much tenderness over the stomach and the catheter seemed to pass far down. He was, however, obliged to withdraw the in-

strument very rapidly, because of the sudden gush of pus; and, consequently, he could not tell, from the introduction of the catheter, exactly where the stricture was situated.

DR. L. C. PETER presented a case of

POSTDIPHTHERITIC PALSY,

limited to one arm, in a child of two years. In the third week of a moderately severe attack of diphtheria. The child gradually developed a flaccid palsy of the right arm, forearm, and hand, with marked wasting in the extensor group, the dorsal interossei, and the palmar muscles. There was neither palsy of the left palate nor of the other extremities. The knee-jerks were normal. The biceps tendon-jerk was absent on both sides. The child improved rapidly, and can now execute most of the arm and forearm movements, though the small muscles of the hand are still considerably wasted. Cerebral palsy was eliminated by the normal knee-jerks, the marked trophic wasting, and the absence of spasticity; infantile palsy, by the absence of the usual history of the prodromes, etc., and by the distribution of the palsy and the rapid general improvement. The child showed some signs of rickets, but these were not so marked as to suggest that disease as a cause for so complete a palsy with decided trophic wasting. Against a new nerve-injury were the absence of a history of injury and the rapid improvement in the paralyzed parts, together with the total absence of pain.

DR. BURR said that the case was surely very unusual. As a general rule, palsy of one arm or leg does not occur as the result of diphtheria itself; and, if it occurs, is not a true diphtheritic palsy; but is secondary, and caused by some complication. In this case, the palsy, said Dr. Burr, is certainly not central, but is either spinal or peripheral. It could have been caused by a very small area of softening, due to vascular disease in the cord. If the palsy were diphtheritic, the prognosis would be correspondingly good. In the infectious fevers, local arm or leg palsy does occur.

DR. MCKEE, when a resident at the Philadelphia Hospital, had seen, in the service of Dr. Wharton Sinkler, a case of generalized diphtheritic paralysis. Eventually, the diaphragm had become paralyzed, and the man had perished with symptoms of gangrene of the lung. An autopsy could not be procured.

DR. PETER, in closing, said that when he first saw the case he did not feel that it was a diphtheritic palsy; but that the longer

he studied it, the more strongly he was convinced that it was diphtheritic in origin. As to injury, there was no history of this; and if the injury had been severe enough to produce so marked an extensive a palsy, it seemed hardly probable that so much recovery would have occurred in such a short time—about four weeks. Dr. Peter mentioned that 4,000 units of antitoxin had been used early in the case.

DR. D. J. MILTON MILLER read a

BRIEF NOTE OF A CASE IN WHICH THE TIME REQUIRED BY AN IMPROPER FOOD TO PRODUCE SCORBUTIC SYMPTOMS WAS
ACCURATELY NOTED.

The case was that of an infant of fourteen months, which, from its earliest days, had difficulty in digesting cow's milk unless diluted much below the proportion proper for its age. Attacks of indigestion were quite frequent. Under a most careful system of feeding, it gradually increased in strength and weight; so that at twelve months its weight was about seventeen and three quarter pounds. At this age, a severe attack of indigestion occurred, which, not yielding to various modifications of milk, and whey and milk, was promptly and completely relieved by condensed milk and barley water. To this, fresh cream was added and, with the condensed milk, slowly increased, until, at the end of seven weeks, it was taking a mixture containing approximately 3 per cent. fat and 1.25 per cent. proteids.

The child had increased in weight, but pronounced symptoms of scurvy had appeared; swollen and bleeding gums, epistaxis, and tenderness and swelling above the left ankle. Under proper treatment, complete recovery was established at the expiration of a week.

The case was thought worthy of record, in that it demonstrates the short time (seven weeks) in which scurvy can be induced by an improper food—an observation not hitherto recorded; and also because it teaches us to be on the lookout for the first indications of such symptoms when we are feeding an infant temporarily, as we are sometimes compelled to do, on preserved, condensed, or proprietary foods.

DR. BERND referred to a case that he had seen some years before—the child of a French woman who had nursed the infant from the beginning. It was suspected of epistaxis. There was a history that the child had fallen downstairs, and the nose-bleed

was attributed by the mother to injury. It was, however, an excessively persistent epistaxis, lasting for over twenty-four hours; and the child had hemorrhagic spots scattered over its whole body-surface. It was treated for scurvy, and recovered rapidly. It was very notable that the child had never had any food but breast-milk up to that time.

DR. JOHN H. JOPSON reported 2 cases illustrating conditions arising from

PERSISTENCE OF THE THYROGLOSSAL DUCT.

The first was that of a girl of five, with a cystic tumor in the anterior median line of the neck, overlying the larynx; and with a continuation, which ran upward beneath the hyoid bone. It had developed two years before, was movable, and ascended and descended on swallowing. The tumor was removed. It was a cyst containing mucus, with a prolongation containing a central lumen that ran upward and backward, in the median line, beneath the hyoid bone.

The second case was in a male adult twenty-three years of age, who presented a sinus in the median line of the neck, one-third of an inch above the thyroid cartilage. When eight years old, a swelling had appeared in this location; and an abscess had formed, and was opened. The sinus had followed this, and had persisted ever since. It gave exit to a saliva-like fluid, the quantity of which increased during eating. A small probe, inserted into this sinus, passed in the direction of the hyoid bone; and the sinus could be palpated from without as a hard cord passing in the same direction.

A third case that he had seen was mentioned. The condition had recurred, in this case, after several attempts at removal.

The origin and nature of these conditions are explained by a study of the embryology of the thyroid gland. They are due to persistence—in a part or the whole of its course—of the thyroglossal duct, which forms the median portion of the thyroid gland. The tumors and cysts developing from it may be located at the base of the tongue, between the hyoid bone and the larynx, in the floor of the mouth, or below the hyoid bone; and their chief characteristic is their location in the median line. They must be diagnosed from ordinary tumors and cysts in this locality, and

from the branchial cysts, which are also of a vestigial nature, but which are rarely located in the median line.

The only effective treatment consists in thorough extirpation, which is difficult, as shown by the frequency with which recurrence takes place after operation.

DR. L. J. HAMMOND exhibited

SPECIMENS OF SUPERNUMERARY HYOID BONE AND THYROID
CARTILAGE

removed from the neck of a little patient eighteen months old. The larger of the two was believed to be a supernumerary hyoid, because of its position in the side of the neck, and its close resemblance to that bone; both the greater and lesser cornua in the specimen being distinctly recognizable on the one side, while on the other the lesser cornu is not so well defined. It sprang from the loose areola tissue as deep as the thyrohyoid membrane, and on a level with the upper border of the thyroid notch. The skin over the growth which was fully an inch in height, was distinctly notched.

The smaller of the specimens is as near a likeness to the lateral lamellæ of the thyroid cartilage as can possibly be, being distinctly quadrilateral in form, with an oblique ridge passing throughout its entire length; this ridge, serving under normal conditions for the attachment of the various muscles.

The growth seemed to spring from the connective tissue on a level with the thyroid, and just anterior to the anterior border of the sternocleido mastoid muscle.

There seems no other category into which these embryologic structures can be classified than that of supernumerary hyoid bone and thyroid cartilage.

DR. JOPSON asked as to the appearance before operation.

DR. HAMMOND replied that the appearance was merely that of a projection on each side of the neck—the larger, about an inch in height and notched; the other, smaller. They must, of course, have been offshoots from the lower cleft.

DR. JOPSON suggested that the objects removed were very probably anomalous derivatives of the lower branchial clefts, and were analogous to the supernumerary auricles which sometimes develop from the upper branchial clefts.

COLLEGE OF PHYSICIANS, PHILADELPHIA.

Meeting of May 7, 1902.

ARTHUR V. MEIGS, M.D., VICE-PRESIDENT, IN THE CHAIR.

The subject for the evening was a paper entitled

"ANALYSIS OF HUMAN MILK THE BASIS OF THE ARTIFICIAL FEEDING
OF INFANTS,"

by Arthur V. Meigs, M.D. (See page 738.)

DR. JOSEPH E. WINTERS, of New York.—In the discussion of this important paper I shall take the liberty of referring briefly to the history of infant feeding, which to me is as fascinating as the history of vaccination. Like vaccination, it has been evolved and brought to its present state of perfection entirely and absolutely by the clinician.

The late Dr. J. Forsyth Meigs, who was the most successful physician of his time in the feeding of infants, found that a mixture of cream, water, and milk-sugar which agreed best with young children was, according to all published analyses of human milk, too weak to insure good development, and yet clinically it was satisfactory. As a great clinician Meigs knew, as every great clinician to-day knows, that when laboratory results and bedside observation conflict, the clinical result must be right and the laboratory wrong.

The elder Meigs asked his son, Dr. Arthur V. Meigs, to make analyses of condensed milk. This afterwards led him to analyze human milk, with the result that Dr. Arthur V. Meigs published the first correct analysis of woman's milk.

Arthur V. Meigs then devised a substitute for woman's milk a cream mixture which would contain the same milk constituents as human milk, and in the same relative proportions.

The second point of interest in the history of the present development of infant feeding is that Mr. Gordon, a dairyman, read Meigs' book, and out of this grew the present system of laboratory or percentage feeding. All that is known to-day of accurate infant feeding in any part of the world stands as a monument to Dr. Arthur V. Meigs, its sole foundation being his accurate analysis of woman's milk.

Infant feeding having been placed on a scientific basis, easy of

attainment, satisfactory to every painstaking physician, is in danger at the hands of its friends, sincere but impractical. It behooves the medical profession to contemplate the dangers. First: Centrifugal cream is of chief moment.

For the production of centrifugal cream the milk is filtered through several layers of sterilized gauze and sterilized cotton, and cooled to a temperature of 38° F. It is then put in a Copenhagen pasteurizer and the temperature raised to 83° F.; then put into a centrifugal machine, which makes 6,700 revolutions per minute, and again cooled to a temperature of 40° F. All this mechanical trituration causes a material alteration in the composition of the cream.

Contrast this with cream which has been produced under natural conditions. When cow's milk is allowed to stand, the fat being the lightest part of the milk tends to rise to the surface, and forms a layer which we know as cream. This contains not fat alone, but all of the constituents of the milk, and is, therefore, simply milk containing an excessive amount of fat. Each fat globule by molecular attraction is surrounded by a stratum of casein solution, or milk plasma, and this prevents the globules from uniting with each other.

Centrifugalization alters the relation between the surface tension of fat globules and milk plasma; the stratum of casein solution is wanting; the fat globules become coherent. Centrifugal cream must be nearly proteid-free, and the fat globules are united into a more or less coherent mass.

When this centrifugal cream is mixed in the laboratory with skim-milk and water and put in a feeding bottle, after standing a short time it separates into layers, which are as distinct as they were before mixing. Heat the food for feeding, shake it thoroughly, feed it to the baby, and if vomiting occurs, the vomited matters are first clear water, then butter-fat, and finally casein, or the skim-milk coagulated into a firm clot. This kind of vomiting is never seen except when a child is fed on a centrifugal cream mixture. Machine-made cream should not be allowed in the feeding of infants. Its coherent fat globules are indigestible for the young infant, and it does not contain sufficient proteid for the development of the child. The skim-milk added to it is so beyond the digestive power of the child that the percentage of proteid cannot be increased to the requisite amount.

The second danger is the employment of heat. For pointing

out this danger we are indebted to another Philadelphian, Dr. Louis Starr.

Animals in which milk alone is a sufficient food die of inanition if the mineral substances are extracted, and the result is the same if these elements are added to the casein, fat, and milk-sugar, the organic combination being broken up. The inorganic or saline constituents of milk to be assimilated must be in organic combination with the proteid.

Pasteurization destroys the organic combination between the proteids and the mineral elements of milk, and in the breaking up of the chemical union between these constituents is to be found the sole etiological factor of scurvy and rickets.

If sterilization is complete, and the supply of mineral constituents absolutely cut off, scurvy results; if the sterilization is less complete and yet the supply of inorganic and proteid constituents in organic combination greatly impaired, rickets ensue. Scurvy and rickets are one and the same condition; they arise from the same cause, differing only in the degree or intensity of that cause. Both conditions have but *one* cause—the insufficient supply of mineral elements and proteids in organic or chemical union, and according to the degree of cutting off, will one or the other result.

Deficiency of fat and the presence of starch in the food are not in any way related to the lesions of scurvy-rickets; insufficient supply of minerals and proteids in chemical union is the *sole cause*.

If a child does not have raw milk it will be found sooner or later that its tissues are suffering from salt-hunger—a condition which can only be relieved by the introduction into the system of inorganic materials in organic combination with proteid substances.

Within the body these salts are united to the proteids of the tissues and fluids. If the organic combination is destroyed the structure is dead. A food which does not contain inorganic elements and proteids in organic combination will not sustain life, and a food in which the destruction is partial only half sustains life. Much undefined ill-health in children has as its origin this cause, the nature of which is not even suspected by the medical profession. The pasteurizer has no longer a place in the nursery.

A third error which is placing milk feeding in danger is a circular which is issued for the enlightenment of the profession.

This circular gives the following formulæ for the guidance of physicians in prescription-writing—all of which are wrong:

Fat	Proteids.
2.00	0.75
2.50	1.00
3.00	1.00
3.50	1.00
3.50	1.50

For the best results in infant feeding the following relative proportions between fat and proteids will be found essential:

Fat	Proteids.
2.00	0.25
3.00	0.50
3.50	0.75
4.00	1.00

An experience in the feeding of many hundred children from the Walker-Gordon Laboratory makes me feel confidently positive that these relative proportions must be adhered to if we are to avoid digestive and assimilative disturbances and secure satisfactory development of the child. The explanation of many of the failures in fine modifications is due to the fact that the relative proportions between fat and proteids have not been correct.

With proper relative proportions between fat and proteids we can easily feed a child on a mixture containing 4.00 fat and 1.00 proteid at the end of the first month, and on 4.00 fat and 2.00 proteid at the end of the fourth or early in the fifth month. The proteid must be increased more gradually in summer, and a child of six or eight months will rarely digest more than 1 per cent. of proteid during the warm months.

The importance of the proteids on development is an essential factor in infant feeding. There will be found a close relationship between development and the percentage of proteids. The calf doubles its weight in one and one-half months and upon 4 per cent. of proteids. An infant doubles its weight in six months and upon 1 or 1½ per cent. of proteids. In other words, it takes the infant four times as long as the calf to double its weight, and on about one-fourth the amount of proteid.

Here comes in a wonderful provision of nature—namely, that cow's milk contains six times more of the inorganic constituents than human milk, and the bony framework of the calf develops proportionately. Cow's milk, when diluted four times, as we

ordinarily prepare it, still contains a sufficient proportion of salts for the development of the infant.

A final error is that we are told that we should not add more than one-twentieth of lime-water to cow's milk when fed to infants. In my own experience this has led to unfortunate results. I have experimented a good deal with lime-water, and am absolutely confident that cow's milk should contain one-fourth lime-water when fed to infants. There may be exceptions. In winter, if the child becomes constipated, the lime-water should be diminished, but fully one-fourth should be used during the summer months and in early infancy.

We are in danger of too much chemistry and of too little individualization at the bedside.

Every statement which I have made regarding gravity *versus* centrifugal cream, the absolute necessity of raw milk, and the importance of lime-water has as its sole basis clinical results.

With gravity cream which has never been subjected to any degree of pasteurization, with the proper relative proportions of fat and proteids, with one-fourth lime-water in early infancy and during the heated term, accurate scientific infant feeding is easy of attainment by any painstaking, practical physician who possesses the important faculty of individualization at the bedside.

DR. LOUIS STARR.—I feel that there is very little for me to say after Dr. Winters, as he has covered the ground very thoroughly. My views entirely coincide with his so far as separator or "laboratory milk" feeding is concerned. I advocate also a gradual increase in the albuminoid percentages as the infant advances in age. On the other hand, I cannot go quite so far in the matter of attenuants, believing that these agents exert a mechanical action, tending to the formation of a finer and more readily digested curd than can be obtained by simple dilution with water, and that there are certain cases in which good results followed their employment; the best attenuant, in my opinion, is thin barley water. While appropriate rules can be formulated to apply to the feeding of infants as a class, isolated cases constantly occur which have to be fed on their own basis. Speaking generally, I think the proper artificial food to employ must be composed of gravity cream, whole milk, milk-sugar, and water alkalized; and that the percentage of albuminoids should, under favorable conditions in a healthy child, be gradually increased from 0.50, during the first week of life, until, at the age of ten months, it has been raised to

2.50 per cent., the quantity allowed for each feeding ranging from one to eight fluid ounces.

DR. J. P. CROZER GRIFFITH.—I feel entirely in accord with both of the points raised by Dr. Meigs; first, that the proteid percentage of mother's milk is low; second, that there should be no rule according to which the strength of the child's artificial mixture is increased in proportion to the age. There are, however, important exceptions to both rules which we must never forget. There are very great differences, which are well understood, existing between the proteids of cow's milk and mother's milk. It seems to me that Dr. Meigs' practice of calling all proteids *casein* gives an erroneous impression, inasmuch as we know that there is another proteid in mother's milk which is distinctly in excess of the casein, and which is much more easy of digestion. In fact, it is this preponderance of the casein as compared with other proteid matter in cow's milk which is one of our greatest difficulties in feeding a baby artificially.

Then, with regard to the increasing of the child's food. I have always been out of sympathy with the "rule-of-thumb" method which one sees in some medical writings, according to which a child at birth should receive a certain strength mixture, at three months another strength, at six months still another, and so on. This is entirely opposed to nature's way. The only rule which can guide us properly is the question of the child's comfort and weight. If a baby is evidently thriving on a low percentage mixture there is no occasion for increasing the proportions simply because the child is older. If, on the other hand, it does not gain and yet has good digestion, the proteids and probably the other ingredients also must be increased in strength. As a matter of fact, it is quite commonly necessary to raise a proteid percentage with increasing age; but I have seen the effort to do this simply because the child was older occasion distinct indigestion. It is, as I have said, a question of weight and health which must guide us.

I dislike to disagree with Dr. Winters, and yet I must confess that I am not at all in accord with some of the statements which he has made. Take, for instance, his wholesale condemnation of centrifugated cream. One hears the same objection raised from different quarters now and then, yet, although I have looked carefully into the matter, I have failed to see that the cry against it is supported by any evidence whatever, either clinical or experi-

mental. I will cite you, for example, the very vast experience of Dr. Rotch in Boston, and of many of the New York pediatricists with whom I am well acquainted, who never have any difficulty whatever in feeding children with it. My own experience, which I may claim is not small, does not uphold in any point the objection which Dr. Winters has made. Then if we stop a moment to think that practically all the cream which is bought in cities is centrifugated cream, we are forced to the conclusion that there can be no such great disadvantage in it as Dr. Winters has maintained. So much for the clinical side. From the scientific and experimental side this matter has been thoroughly tested. I may quote you the interesting experiments of White and Ladd, of Boston, who have shown that the separation of the fat to which Dr. Winters has referred is not due in any way to the use of centrifugated cream. These investigators tested mixtures with cream of this nature, with gravity cream, with whey, and so forth, and found that the breaking up of the emulsion would occur in any of the mixtures if the bottles were not kept cool and were shaken up badly in long transportation, as in a wagon. The statement that there is a difference in the emulsion of mixtures, depending upon whether gravity cream or centrifugated cream has been employed is, I believe, largely an assumption which has never been confirmed either by experiment or by investigation with the microscope.

Next, with regard to the subject of sterilization. I do not favor either pasteurizing or sterilizing when I can get milk upon which I can depend. But, Mr. President, we are surely in a desperate state if the use of heat produces all the harmful effects which have been ascribed to it to-night. It is not many years since practically every physician was recommending a thorough sterilization of all milk mixtures. Long before this those of us who were not fortunate enough to be fed upon mother's milk were given a cow's milk mixture which had always been "scalded." This was and still is a common practice of the laity. Yet the race has seemed to survive pretty well in spite of the fact that the nourishing qualities of the food were practically destroyed, according to the statements which we have heard to-night.

With regard to the production of infantile scurvy by the heating of milk, I have had peculiar opportunities to study this matter most carefully, having been one of the members of the Committee of the Pediatric Society to review the cases obtained from Ameri-

can physicians. It is perfectly true that many cases of scurvy did develop upon the use of sterilized milk, yet the employment of commercial foods was found to be a very much more prominent factor, and there were cases not a few which developed upon raw milk mixtures and even in children who were fed solely at the breast. It is, therefore, something more than the mere use of heat which is the causation of infantile scurvy.

After all, Mr. President, I am more and more impressed by the fact that this subject of the feeding of children is one upon which many different views may rightly be held. There is, I suppose, one ideal way of feeding children, but we have not learned it yet, and the excellent results which so many men obtain in methods very different show that we must carefully guard ourselves against statements which are too positive. It is our business to get as close to Nature's method as we can, but we cannot, in the present state of our knowledge, imitate her exactly, and we must never forget that no rule applies to every child. The individuality is a most important matter in the problem of infant feeding.

DR. D. J. M. MILLER.—Dr. Meigs' father said a great many years ago that every child was a law unto itself, and that he was the most successful physician who discovered the law for each child. This is the whole secret of infant feeding. No one mixture will agree with every infant, not even mother's milk.

To me it seems that a weak point in Dr. Meigs' paper is the use of an invariable mixture for every child of from one to six or nine months, without paying any attention to the natural variations in human milk or to the digestive capacity of the child. As to the strengthening of the food, I would like to ask why, if he advises the use of his mixture until the age of six or nine months, it should not be used longer, because certainly mothers nurse infants from nine to fourteen months on human milk alone without their suffering from lack of nutriment. I notice that after the six months he advises it to be increased in strength. My own experience is like that of Dr. Westcott, that a baby after the third or fourth month will not thrive on a mixture like Dr. Meigs', containing only 1 per cent. of albuminoids, or only one-quarter of milk. The milk in the mixture must be at least one-third after the third or fourth month if we wish the infant to thrive. The experience of everyone is that as soon as the child can be given pure milk it should be done. I fancy if infants increase in weight

after the fifth or sixth month on Dr. Meigs' mixture it is because of the large amount of sugar (7 per cent.) which it contains.

DR. S. SOLIS COHEN.—I should like to ask as to the experience of the speakers with the use of cream and whey mixtures. Sometimes, whether on account of the physical and chemical differences between the casein of human milk and the casein of cow's milk, or from other reasons, a child cannot be suited with the mixture of Meigs or any modification thereof involving the use of whole milk or skimmed milk. The albuminoid constituent of whey, as separated by rennet, seems then to be better adapted. I should also like to ask Dr. Meigs whether, in the course of his analyses, he observed anything tending to show any seasonal differences in the composition of human milk; in other words, whether Dr. Winters' clinical experience regarding the increase of proteid in winter is paralleled by any physiological change in the secretion of the mother at this season.

DR. E. E. GRAHAM.—If, following the advice of Dr. Meigs, we feed children until the age of six or eight months on 1 per cent. of proteids; if, following the advice of others, we use nothing but gravity cream; if, following the advice of others, we use milk that is gradually increased in proteids from a few weeks up to twelve months, and if, following all these methods, the children gain continuously and progressively in weight, it looks as if it must be possible to feed children by a variety of theories and methods, and yet have these children constantly thrive. It must be, therefore, that in all these methods there is some one idea that neutralizes the differences in methods. The fact that all these gentlemen give milk that is carefully prepared at the farm, kept as far as possible germ free, given at regular intervals and in definite quantities, fed from clean bottles and nipples, must, I think, be the factors underlying these statements. Many physicians of large experience simply take milk diluted with water, and, if the milk has been properly cared for, get fairly good results. There is no question that if in a child born healthy the method is systematically carried out of taking human milk as represented by fat (4 per cent.), sugar (7 per cent.), and proteid (1.5 per cent.), the child is given milk, gradually increasing in definite amounts of fat, sugar, and proteid, according as the child becomes older, until, at the age of thirteen months, most children can be fed on whole cow's milk, that the majority will pass through the period of childhood with little more digestive

disturbance than the ordinary breast-fed infant. This is true, whether they are fed on gravity cream or centrifugal cream. This applies only to children born healthy, living under the best hygienic conditions, and fed on gradually increasing percentages. I question whether a method never giving infants more than 1 percentage of proteids for the first six or eight months will show the same gain in weight, strength, and normal development as if the proteids were increased earlier.

DR. MEIGS, in closing the discussion, said: The question whether it is advisable to increase the strength of an infant's food at frequent intervals, as has been commonly advised, is, as I have said, one that can only be decided by the results of experience in trying the two methods, that of increasing the strength and that of using the same food, but increasing the quantity of it. It has surprised me very much, however, that the question has never excited the interest of which its importance makes it worthy.

In the course of the last twenty years I have seen many children fed according to the method that I have described thrive in the most satisfactory way. Infants so fed have not dwindled nor fallen into a state of malnutrition; on the contrary, they have thriven and developed in a natural way when given food of the same strength from birth until they were six or even nine months old. The heat of summer has not disturbed their health any more than it disturbs that of other healthy infants.

In regard to cream obtained by using the centrifugal machine, to pasteurization, and to sterilization, my opinion is and has been from the beginning that they are occasionally necessary evils which may sometimes be used to get us out of difficulties. Under ordinary circumstances they should be avoided. In Philadelphia no one need complain that he cannot obtain good gravity cream. The milk supply is good, and it is only necessary to obtain good milk, and anyone can raise his own cream. It is necessary only to look to the fountain-head and see that the original source is good, and that pure and unspoiled milk only comes into the house when a young infant is to be fed.

Something has been said about the composition of casein. The truth is that we really know very little about it. The analysis of milk is as yet a very crude chemical process. We only know that milk consists of water, salts, fat, sugar, and something else. That something we have chosen to name casein or albuminoids or proteids. It is probably a compound substance, but what it really

is none of us need pretend to understand. Milk analysis helps us to know how to make a food for babies, but the chemistry of casein is still in its infancy.

The question whether human milk changes with the changes of the seasons, and is different in summer from what it is in winter, is a hard one to answer. It is unlikely that there is any difference sufficient to be recognized by the present methods of analysis.

In answer to the question why I do not increase the food of infants until they are from six to nine months old, I can only say that in my method for their artificial feeding I have tried to imitate Nature, and that when I have followed my plan of increasing the quantity of food and have left the strength the same my efforts have generally been crowned with success. Anyone who says that children so fed fall into a state of malnutrition is mistaken. They do not.

I cannot agree with those who think that as good results can be obtained by the artificial feeding of young infants as would result if the same infants were nursed by their mothers. No system of artificial feeding has as yet been devised, or is likely ever to be devised, which will produce so large a number of healthy men and women as the nursing of infants by their own mothers.

Lumbar Puncture.—Of 60 lumbar punctures practiced by A. Chipault (*Le Médecine Moderne*, December 25, 1901) for therapeutic effect, fluid was not obtained in 9; of the others cure resulted in 11 cases, improvement in 14, and in the rest the results were negative. The cases cured were serous hypersecretion in congenital hydrocephalus, coma in an old syphilitic, grippe, meningitis, choreiform movements, specific meningomyelitis, septic meningitis, cranial traumatism and vertebral traumatism. The improved cases were 2 of hydrocephalus, 2 of infantile cerebellar tumors, pneumococcus meningitis, 5 of tuberculous meningitis, 2 of epilepsy, uremia with profound torpor, and rheumatism with rachialgia. In all these cases except the case of rheumatism, the improvement was only temporary. The cases with negative results were 9 cases of hydrocephalus, 4 of tumors, 3 of tuberculous meningitis, 1 of cerebrospinal meningitis, 3 of epilepsy, 4 of general paralysis, blindness with papillary edema, and vertebral fracture.—*Medical News.*

THE SOCIETY FOR THE STUDY OF DISEASE IN
CHILDREN.—LONDON.

*Annual Provincial Meeting of the Society held at the Children's
Hospital, Pendlebury, Manchester,
June 21, 1902.*

DR. HENRY ASHBY, CHAIRMAN.

DR. A. E. SANSOM read a paper on

HEART DISEASE IN CHILDREN.

He said the chief affections of the organ were rheumatic, but not always and were not often associated with painful and diseased joints. The chief groups of diseases were: first, the temporarily swollen and enlarged heart of rheumatism; second, the heart of rheumatic pericarditis; third, the heart of rheumatic endocarditis with resulting valvular disease; fourth, the heart of slow and insidious rheumatic endocarditis inducing mitral stenosis.

DR. CAUTLEY showed a specimen of

ATRESIA OF THE CONUS PULMONALIS AND PATENCY OF THE SEPTUM
VENTRICULORUM.

The child died at the age of twelve months from cardiac failure during an attack of dyspnea. Dr. Cautley thought cases of congenital heart disease should be divided into two groups, those due to developmental error and those due to fetal endocarditis. Occasionally the two factors might be coexistent. He regarded congenital syphilis as the first cause of developmental error.

DR. THEODORE FISHER thought the most striking feature of heart disease in children was pericarditis. Dilatation, slight in amount, occurring in rheumatism was not serious. He thought myocarditis and pericarditis showed that the heart was poisoned as a whole. He agreed with Dr. Cautley's classification of congenital heart disease. A patent foramen ovale was very common and could be found in one-fourth of adult autopsies if looked for.

MR. W. P. MONTGOMERY read a paper on the

RESULTS OF TENDON TRANSPLANTATION

in 25 cases of infant paralysis of the lower extremity. The cases were classified into various groups and the results of the various methods employed were given. The work of re-education was often very slow but the final state good. A number of cases was shown in the wards prior to the meeting.

DR. Gwynne read the notes of a case of

INFANTILE PARALYSIS OF THE LEG

which he had treated by excision of the knee, ankle and tarsal joints. The result was most satisfactory and the boy could walk well though with a stiff leg. There was no deformity beyond some shortening.

MR. R. CLEMENT LUCAS spoke of the old-fashioned way of treating such cases by tenotomy with results which were not encouraging and of the great advance of the present method. He had himself done more in the way of excising the bone in the extreme cases of deformity than had been done in the present series.

MR. WALTER EDMUNDS thought the cases were very successful and regretted the shortness of the time at the disposal of the Society for discussion.

MR. COLLIER agreed that the best way was to graft tendon on to periosteum if that could be done and the tendon were long enough. He had more experience of arthrodesis in cases where the limb was flint like.

MR. R. CLEMENT LUCAS read the following communication.
A case of

DISPLACEMENT OF BOTH TESTES IN PERINEO WITH AN INGUINO-PERINEAL HERNIA

on the right side. No deformity had been noticed till the sudden descent of a hernia on the right side at the age of three years drew attention to the displacements. A photograph showing the double displacement was shown. A radical cure of the hernia and replacement of the testes had been affected.

MR. SYDNEY STEPHENSON read a paper entitled

FLEETING AMAUROSES IN CHILDREN PRESENTING SYMPTOMS OF
MENINGITIS

and related a series of cases in infants who, while suffering from symptoms indicative of posterior basal meningitis, became blind without ophthalmoscopic changes. Sight was ultimately completely recovered.

MR. R. C. DUN read notes of a case of

HYPERTROPHY OF THE RIGHT GREAT TOE

and showed radiograms, photographs and a cast of the foot of the case. The deformity occurred in a girl aged seven and one-half years and no overgrowth was noticed until the child was five years old. The whole of the tissues of the toe were increased, the bones taking part in the hypertrophy. The greatest development was of a lipomatous nature. A definite fatty mass was present on the dorsal surface of the terminal phalanx.

MR. LUCAS said many such cases of hypertrophy were nevoid lipomata and asked if there was any nevoid condition of the toe.

MR. DUN replied that there was not.

After a vote of thanks to the chairman and the hospital authorities for the use of the hospital the meeting terminated.

Changes in the Pulse in Childhood.—G. A. Dotti asserts (*Rivista Critica di Clinica Medica*, May, 1902) that the pulse undergoes greater changes normally and pathologically in children than in adults. In typhoid fever arrhythmia appears from the fifteenth to the thirtieth day and disappears from the thirty-fifth to the fiftieth. In pneumonia the pulse resembles that of typhoid fever more than it does in other pulmonary diseases, in which there is irregularity rather than a true intermittence. In influenza the arrhythmia appears somewhat early. In diphtheritic angina of slight import there is merely tachycardia and a small pulse, but in grave cases there is bradycardia. This also occurs in the convalescence from scarlatina.—*Medical Record*.

Current Literature.

MEDICINE.

Jemma, R.: Barlow's Disease. (*La Pediatria.* Vol. x., No. 6.)

This condition is hardly known in Italian literature, and the case reported by the author is perhaps the first known in that country. The patient was eleven months old, and of good sound ancestry. He was nursed on the breast for the first three months and thereafter was fed with humanized milk. His gain in weight was normal, and he cut his first teeth at six months. At the age of nine months he began to fail in health. Purpuric spots appeared upon the limbs after some weeks of pallor and debility. One of the wrists swelled and he began to sweat profusely. Treatment had been of no avail.

When first seen by Jemma, he was extremely pale and looked very ill. At the junction of the epiphysis and diaphysis of the left femur was a fusiform swelling the size of a mandarin orange. The knee was in no wise implicated. The possibility of fracture could be excluded. Similar lesions were present at the lower extremity of the right tibia and at the epiphysis of the right radius. A few other osseous peculiarities were suggestive of rickets (wide-open fontanels, beaded ribs). The gums were swollen and bled readily. Results of further examination were negative.

A diagnosis of infantile scurvy was made, and the patient recovered upon a diet of ordinary cow's milk and orange-juice.

Permanyer, Luis : Infantile Syphilis; Lannelongue's Tibia; Recovery. (*La Medicina de los Ninos.* Vol. iii., No. 30.)

The baby was eighteen months old. No history was obtainable but a diagnosis of acquired syphilis was made. The skull presented a condition of crano-tabes with open fontanel. The tibiae exhibited that form of lesion which goes by Lannelongue's name. They were flattened laterally and there was a slight in-

curvature present. There were a number of ulcers scattered over the surface of the body. These various manifestations, which were tertiary in type, appeared to have been evoked from a condition of latency by the act of vaccination. The infant made a good recovery under mixed treatment.

Hymanson, A.: A Case of Amaurotic Family Idiocy. (*The New York Medical Journal.* No. 1232.)

The patient was of normal birth and antecedents. At the age of eight months he ceased taking any interest in his surroundings, and became listless and apathetic. He could not hold up his head, which appeared to be decidedly hydrocephalic; and he also became weak in all respects. An ophthalmoscopic examination discovered the conditions originally described by Tay as characteristic of a particular condition, viz.: amaurotic family idiocy. The patient died when nineteen months old, and the characteristic features of his affection may be described as follows: Idiocy; weakness of all muscles; terminal paralysis; gradual loss of sight and characteristic changes in the macula lutea; marasmus and death at the end of the second year.

Leullier, Émile: Arthritic Eczema of Infancy. (*Archives de Médecine des Enfants.* Tome v., No. 6. June, 1902.)

This eczema occurs in children with an arthritic tendency as the result of a sort of autointoxication, without, of necessity, an exciting cause, such as digestive disturbance, etc. The writer sums up his conclusion as follows: (1) We believe that eczemas are of internal origin, and we subscribe to the definition of M. Brocq, who describes the disease as a dermatitis, characterized by redness and vesiculation, frequently, but not always of a moist type, with subsequent formation of crusts and desquamation. (2) We agree with Professor Bouchard in his theory of arthritis. He considers it to be a "bradytrophia" characterized by the presence of imperfectly elaborated excreta of which the most important are organic acids, notably uric acid (theory of uricemia). (3) This diathesis is closely related to eczema, to which it strongly predisposes. (4) The eczemas of early infancy are mainly of alimentary origin, developing as a result of a certain hereditary diathesis and divisible into two varieties, described by

Dr. Marfan. Additionally there is a special class of eczemas studied by us, this class cannot be understood without attention to the question of heredity. Such eczemas are the first manifestations of arthritic tendency in children. (5) Arthritic eczema also occurs in later childhood, when it assumes the character of the adult type of the disease. (6) The diagnosis of this variety of eczema is made by (a) a study of the family history, and the existence of certain morbid phenomena recently grouped under the generic term "uricemia" in children. (b) This eczema usually assumes a dry form without crusts, with marked pruritus; successive attacks occurring. It resists treatment and usually alternates with other associated arthritic manifestations. We recognize three varieties analogous to those described as occurring in adults—a vesicular form which is rare; a form with fissures which is more frequently seen, and a dry form (seborrheic.) (c) Analysis of the urine (high specific gravity, excess of uric acid and urates.) An analysis of the blood serum will confirm the diagnosis. (7) The pathogenicity is still obscure. It seems to us that the condition is caused by the elimination by the skin of toxic principles, such as uric acid, etc. (8) The treatment should be in accordance with the diathesis: it should consist of (a) a suitable diet, chiefly vegetable, and almost non-nitrogenous. (b) Strict hygienic measures, aiming at stimulating nutrition (massage, and open-air exercise). (c) Therapy should seek to diminish the acidity of the excretions and to render the blood serum alkaline. Bicarbonate of soda and other alkalies should be given in moderate doses and intermittently. (d) Treatment with mineral waters appears to us to be best. (e) Local treatment should be carefully applied.

Neustaedter, M.: A Case of Progressive Muscular Atrophy and One of Pseudohypertrophic Paralysis in Young Children. (*New York Medical Journal.* No. 1231.)

The case of atrophy occurred in a girl six years old, was of very recent supervention and limited to the right upper arm and scapular muscles (including the deltoid) and those of the left lower extremity. There was also marked lordosis. In other respects the patient was healthy. The disease appeared without any obvious causation. The atrophied muscles did not show the reaction of degeneration.

The case of pseudohypertrophy was in a boy eight years old, and began three years before, coming on after a severe fall which had apparently greatly affected the general nutrition. The increase in the size of the calves coincided with beginning inability to ascend stairs. The patient is of weak mind. Examination shows enlargement of other muscles—both of the quadriceps extensors as well as the triceps and right scapular muscles. Lordosis is well marked. The affected muscles are devoid of electrical excitability.

Porak: Two Cases of Cyanosis of Cardiovascular Origin.
(*La Press Médicale*. No. 50. June 21, 1902.)

In the first case there was persistence of the ductus arteriosus, into which a large probe could be passed. There was also dilatation of the pulmonary artery. The heart sounds were blowing. The second case was that of a feeble child, weighing 1900 gms. The right ventricle showed no chamber, and the aortic valve had only two cusps.

Coolidge, J. W.: Maternal Impression "Marks" Child for a Frog. (*Journal of the American Medical Association*. Vol. xxxviii., No. 25.)

The woman gave birth to an ordinary anencephalus fetus, which monster she brought in relation with the fact that in the third month of pregnancy she had seen a cat kill a frog: the latter animal has a noted resemblance to the anencephalus, especially when the latter is seen from behind. [As the reporter appears by his silence to share in the mother's belief, the editor of the *Journal* appends a long commentary on the irrationality of such beliefs, and accounts for the production of the monster on rational grounds, viz., non-union of the posterior vertebral plates. He styles the fetus an exencephalus; but judging from the data and photographs, it should be an anencephalus, which is by far the most common form of monstrosity known.—ED.]

Rossi, F.: A Case of Meningism with Facial Paralysis Due to Intestinal Autointoxication. (*La Pediatria*. Vol. x., No. 5.)

The patient, a boy aged six years, had all the signs of meningeal irritation with facial paralysis when admitted to the author's

clinic. The condition followed upon repeated attacks of gastrointestinal disorder, which appeared to depend upon a rachitic disposition. It is well known that these disturbances in the alimentary canal may give rise to the formation of toxic products, which may produce isolated symptoms, such as vomiting, headache, vertigo, etc., and in high degrees the picture of meningeal irritation (meningism of certain writers). The treatment consisted of evacuants, such as calomel, castor oil, santonin, etc., with counter-irritation about the head. The diet was of the simplest. After several exacerbations, the child recovered, treatment extending over four weeks.

Moragas, Manuel: Latent Generalized Tuberculosis. (*La Medicina de los Niños.* Vol. iii., No. 29.)

There are four symptoms which together make up the clinical picture of this disease, viz., marked general atrophy, persistent and alternating hypothermia, edematous collections, and micro-polyadenopathy. In a case which is given in detail, these symptoms were all present in a marked degree. The patient was a girl, aged two years. The extent of the emaciation was shocking; the temperature but 35.2° C., and there was intense edema of the eyelids and labia majora. All the lymph nodes accessible to palpation were enlarged. Other symptoms were chiefly absent. There was no cough, pain, vomiting, etc. The child had been nursed by a tuberculous mother. Autopsy revealed tubercles everywhere, the entire organism having become infected.

Guida, T.: Riga's Disease or Sublingual Production. (*Archivio de' Patologia e Clinica Infantile.* No. 2.)

Several cases of this affection are described, whence it appears that exaggerated attempts at nursing, owing to a defective supply of mother's milk, may determine a mechanical lesion of the frenum linguæ from the prolonged friction of the latter against the dental arch. At first an abrasion, it may in time develop productive changes. Naturally the defective alimentation could manifest itself in other ways, and thus we are enabled to understand why some observers have regarded the sublingual lesion as a feature of an unknown cachectic affection. Bacteriologic studies were invariably negative, although the abrasions might become secondarily infected.

Friedlander, A.: A Case of Pulmonary Stenosis. (*Inter-state Medical Journal*. Vol. ix., No. 6.)

The boy, aged four years, was admitted to the hospital with some tendency to dyspnea and cyanosis, of six months' standing, and dating from an attack of diphtheria with cardiac complication. Physical examination showed a rough systolic murmur, heard loudest in the second left interspace, just to the left of the sternum. The second pulmonic sound was very feeble. The right ventricle was enlarged and imparted a thrill upon palpation. There was a slight elevation of pulse and temperature. The lungs were normal. In making an exact diagnosis, it would be impossible to exclude the presence of a congenital valvular lesion, which is often quite tardy in manifesting itself. The existence of a tuberculous infection was suspected, by reason of the pyrexia, but could not be verified.

Ewart, Wm.: Bronchiectasis in a Child. (*The Polyclinic*. Vol. vi., No. 6.)

The patient was six years old, and suffered from cough with abundant expectoration. The physical signs were those of bronchitis and bronchiectasis, and the affection was evidently of long standing. To favor drainage of the cavities, the foot of the patient's bed was raised, and a light canvas jacket, reinforced with a piece of elastic tissue on each side, was worn, with a view of favoring expiration and incidentally inspiration as well. This plan of treatment is successful when applied at an early period; but, as the present case was one of long standing, the prognosis for recovery is doubtful.

Vargas, Martinez: Jeronimo Soriano, etc. (*La Medicina de los Ninos*. Vol. iii., No. 30.)

The author shows that exclusively pediatric literature is much more ancient than has generally been believed, and that no less than five special works on pediatrics were published in Spain before 1612.

Diaz de Toledo was the author of a small work on diseases of the newborn which was published in 1538.

Jeronimo Soriano published a treatise on the treatment of children's diseases at Laragossa in 1600. This work comprises thirty-

nine chapters, devoted to such conditions as worms, prolapsus ani, insomnia, night-terrors, epilepsy, ranula, and other familiar affections of childhood.

Wooley, Paul G.: Infarction of the Adrenal. (*The Montreal Medical Journal.* Vol. xxxi., No. 6.)

The following case is thought to be unique : A baby aged eleven months died of some obscure affection, and an autopsy was held. A tumor, which resembled a hematoma, was found in the right renal region. It had the size of a goose-egg, and the suprarenal body was found intact within its midst. The source of the blood could not be determined. The suprarenal body was studied macro- and microscopically, and was found to be the seat of an extensive interstitial hemorrhage; its central vein being occupied by a thrombus. It was assumed that the latter was due to marasmus, and had in turn given rise to the infarct. On account of the abundant anastomoses of the arteries in this locality, infarction is extremely rare ; in fact the author can find no mention of identical cases.

Thomas F. W.: Case of Croupous Pneumonia Terminating in Gangrene of the Lungs. (*Southern California Practitioner.* Vol. xvii., No. 7.)

Up to the fifth day of the pneumonia the thirteen-year-old boy seemed to be doing well, but at that period a severe chill appeared, and all the symptoms became accentuated. On the ninth day the sound lung was found to be involved, and the patient soon passed into a state of adynamia. One of his fingers had begun to inflame on the eighth day, although there was no history of injury. Within two days this finger had become gangrenous. On the eleventh day, there was every evidence that the solidified lungs had also become necrotic. On the thirteenth day the right foot showed a gangrenous area. Death took place on the following day. Autopsy showed that necrotic foci were diffused throughout the lungs. Areas of disintegration were likewise present in the liver and spleen. The boy had never been robust. The case may be regarded as upholding the truth of a proposition frequently disputed, viz.: that croupous pneumonia in a child may terminate in gangrene.

SURGERY.

Hibbs, Russell A.: Subcutaneous Division of the Tendo Achillis for the Relief of Equinus, Following Infantile Paralysis. (*The New York Medical Journal.* No. 1233.)

An attempt was made to determine whether or not the increased length of the tendo Achillis consequent upon its subcutaneous division for the relief of equinus had any effect in modifying the function of the calf muscles. A number of cases was studied. The original operation was uniform in each case; the tendon was divided subcutaneously—in some cases the plantar fascia as well, and the deformity was immediately overcorrected. The foot was put in plaster of paris at an angle of 99° and the patient kept in bed for from four to six weeks. The action of the gastrocnemius and soleus muscles was then studied.

In most of the cases investigated the length of the tendon was exaggerated while it was smaller and flatter than normal. The muscles were markedly retracted and the functions of the calf seriously compromised. The gait was entirely devoid of elasticity and there was a marked limp. The causation of this state is complex. The calf muscles were shortened by the original equinus deformity and are further abbreviated by the artificial lengthening of the tendo Achillis as a result of tenotomy. It is evident that the division of this tendon involves considerable disadvantages to an as yet unknown but doubtless considerable number of patients.

Cumston, Chas. G.: Intestinal Invagination in Infants and Children with the Report of a Case Successfully Treated by Laparotomy. (*Boston Medical and Surgical Journal.* Vol. cxlvii., No. 4.)

The patient, nine months old, was seen ten hours after the onset of the symptoms, which were then of grave character (temperature 40° C.; pulse 140 and poor). Abdominal and rectal examinations gave negative results, and diagnosis of ileocecal invagination was made on general principles. A single session of attempted reduction by rectal irrigation in the Trendelenburg posture having failed, median laparotomy was performed, and the diagnosis confirmed. The invagination was found adherent but the adhesions were successfully broken apart. There were

no signs of gangrene in the gut and the wound was at once closed, recovery being uninterrupted.

A second case, which ended fatally, is also mentioned. The baby was but three months old and poorly nourished. Sixteen hours had elapsed since the debut of the disease. It was thought expedient to perform colostomy as a palliative before attempting a radical operation. The intervention failed to afford relief and the infant died a few hours later. The case proved to be of the common or ileocecal type.

A table of 41 cases from the literature since 1897 shows that laparotomy led to the recovery of no less than thirty-one of the children.

Frank, Jacob: Primary Tuberculosis of the Parotid Gland.
(*The Chicago Medical Recorder.* Vol. xxiii., No. 1.)

The ninth known case of this affection is herewith reported. It is the first example to be recorded in America. The patient was twenty-two months of age, and was originally healthy. The swelling of the parotid, which heralded the advent of the tuberculous process, was taken naturally for the mumps. As pus appeared to be in process of formation the diagnosis was changed to furuncle, and the lesion was poulticed and opened. The resulting sinus failed to close. Some weeks after the first onset of the disease the author saw the case for the first time. It then presented every appearance of a sinus of tuberculous origin, and cheesy pus could be expressed from it. The orifice also represented a salivary fistula. The baby appeared to be perfectly well in all other respects. A radical operation was at once performed. After a free superficial incision had been made, the sinus was curedtted, and the gland extirpated. The wound which was packed with gauze, closed readily, and after the lapse of two years the patient appears to be in perfect health. Microscopical examination revealed the presence of tubercle.

Hawthorne, C. O., and Curtis, H. J.: A Case of Transperitoneal Nephrectomy for Small Round-Celled Sarcoma in a Boy Aged Four Years. (*The Lancet.* No. 4106.)

The diagnosis was made without difficulty. The boy had been ailing since a fall two months before, and the tumor had first been apparent some two weeks before consultation. Hematuria or

other symptoms pointing directly to the kidney had not been in evidence. The operation was performed promptly, and was difficult by reason of the numerous adhesions which had formed. The extirpated mass weighed over three pounds. The chief post-operative symptom was persistent vomiting. Double pleurisy supervened and carried the patient off on the fifteenth post-operative day. Autopsy showed that the operation had been perfectly successful. No metastases had occurred from the original renal growth nor were enlarged nodes found anywhere. The opposite kidney was normal. Owing to the speedy fatality of these growths when let alone, the intervention certainly gave the patient a fair chance of survival.

Ogston, Alex.: A New Principle of Curing Club-Foot in Severe Cases in Children a Few Years Old. (*The British Medical Journal.* No. 2164.)

Radiography suggests a method for treating club-foot which is more nearly perfect than any hitherto devised. The main object of any operation is to restore to the bones their natural anatomic relations. The ossification of the tarsal bones is not completed for many years, and is especially slow in cases of club-foot. In the first years of life these bones consist of an osseous nucleus surrounded by a thick layer of cartilage. If, then, we incise the bone and scoop out the osseous nucleus, we leave a shell of cartilage which, while it offers no opposition to the mechanical readjustment of the foot, is able to produce fresh bone. All of the bones to be dealt with may be thus treated in succession at intervals through a single external wound, until there is no longer any opposition to the rectification of the member. The scooped-out tissue becomes occupied by blood clots, which are replaced first by cartilage, and later by bone. The technique of the operation is readily suggested by the data just enumerated.

Dowd, Chas. N.: Gangrenous Intussusception in a Child Four Years Old; Intestinal Resection; Recovery. (*Annals of Surgery.* Vol. xxxvi, No. 1.)

Abdominal pain and discomfort, with obstruction and vomiting, had persisted for four days. When first seen, the boy was emaciated and tympanitic, with slight fever. Laparotomy was at once performed, and intussusception found at about the middle of

the ileum. There was a gangrenous area in the intestine and mesentery. The intussusception was excised with some free intestine at either end and a portion of mesentery. After the distended upper portion of the gut had been freed from flatus and feces, a circular enterorrhaphy was performed, the abdominal cavity flushed and closed, and an intravenous infusion given. Recovery was never in doubt from the start, although the prognosis in such a case is usually of the gravest.

Morton, Chas. A.: Genu Valgum. (*The British Medical Journal.* No. 2164.)

He has now performed osteotomy upon seventeen limbs in eleven patients by removing a wedge from the tibia. The operation is much more difficult than Macewen's, and there is very great danger of injuring the vessels. The wedge should not be transverse, but with its apex directed obliquely upwards; this allowing of better connection of the deformity. The operation should be begun with the saw and finished with the chisel. It may be necessary to divide the fibula, to complete rectification. In the author's series there was no operative mortality, and but one case in which the wound suppurred. The corrected structures require splints of a special pattern—a combination of the Liston and bark-splints. The results obtained justify the management. Osteotomy for genu valgum is usually done in young children, because urged by the parents—not for indication of choice.

Pendlebury, H. S.: An Unusual Case of Intussusception; Operation; Recovery. (*The Lancet.* No. 4112.)

The patient was a boy, aged two years, who was admitted to the hospital on the second day of his disease. The tumor was readily made out by palpation in the right iliac fossa. Operation was begun just twenty-six hours after the first onset of the symptoms, the boy's general condition being excellent. The intussusception was of the ordinary ileocecal type, and was readily reduced. A second smaller intussusception was now noted in the continuity of the ileum and was also readily reduced. The course of healing was smooth.

Francis, A. E.: Cases of Multiple Exostoses. (*The Lancet.* No. 4112.)

A boy, aged six years, under treatment for some slight traumatism, was seen to have a tumor at the lower end of the radius, near the epiphyseal line. A second growth was found at the upper extremity of the right humerus, and others were discovered upon the acromial end of the right clavicle, the sternal end of the sixth rib of the right side, the lower extremities of both femora, the upper ends of both tibiae, etc., etc. These tumors were all hard and insensitive, apparently originating directly from the bony tissue. The boy was healthy and showed no evidence of rickets. The tumors had had a period of active growth in earlier years. The boy's father was said to be affected with the same malady. Everything went to show that the case was one of multiple exostoses (heredity, symmetry in part, etc.).

Nicoll, Jas. H.: Spina Bifida: Its Operative Treatment Among Out-Patients. (*The Glasgow Medical Journal.* Vol. lviii., No. 1.)

The author's material treated in dispensary practice now amounts to 8 cases. In all of these the management was successful, with a single exception, in which the patient died on the eighth post-operative day from carbolic-acid poisoning. Other infants have shown the presence of carbolic-acid in their urine. In the fatal case the exposure to the acid was connected only with ordinary antisepsis, no special treatment with this substance having been attempted. At one time resection was practiced by the author as a routine procedure; but at the present day he does not operate at all upon ruptured or ulcerated sacs, while large, sessile tumors which do not possess a sufficient amount of skin to form flaps are treated by injection. Hospital care has no advantage over outpatient treatment.

Bachman, P.: Chondroma of the Hand in Children. (*La Presse Médicale.* Tome II., No. 53.)

The author has seen two cases of this kind, and alludes to two unpublished cases of MM. Broca and Lecène. He endeavors to bring together such information as we possess upon the most frequent form of the lesion, namely, chondroma of the bones of the

hands of young subjects. Chondroma of the bones of the hand is seen oftenest in the young, and may occur in infancy or congenitally. The writer considers it probable that the condition originates in a defect in the development of the skeleton resulting either in the nonossification of certain portions of the primitive cartilage or in the abnormal production of cartilage at expense of the marrow or of the periosteum. Traumatism plays an important part as primary cause in many cases. A large number of cases are not attributed to traumatism, however, and rachitis, syphilis, tuberculosis and the infectious diseases have been regarded as causative; no convincing proof of their etiologic significance exists, and the origin of chondroma remains unknown. The disease is usually of a benign character, but when the tumors are multiple and show a tendency to become general, the condition is regarded as grave.

Porak and Theuveny: Cyst at the Laryngeal Opening.
(*La Presse Médicale.* No. 50. June 21, 1902.)

An infant born at term, and weighing 2900 gms., died after six hours. Symptoms were persistent cyanosis and labored breathing, but no laryngeal nor tracheal sounds. At autopsy a distended cyst was found obstructing the laryngeal orifice; the superior laryngeal nerve passed over the cyst.

HYGIENE AND THERAPEUTICS.

Benevento, A.: On Water Diet in Certain Maladies of Infancy. (*La Pediatria.* Vol. x., No. 5.)

By the term "dieta idrica" the author refers in the primary sense to pure water, to which he would restrict the little sufferers from gastroenteric disorders for a short period. After a certain degree of improvement has resulted, the water may receive the addition of a little wine, milk, white of egg, or other substances, so that the patient receives his food in a thin dilution or emulsion. This plan of diet, with the addition of intestinal disinfectants, such as calomel and salol, constitutes in the author's mind a veritable system of therapeutics applicable to a large part of clinical medicine.

Grosz, Julius: Alcoholism in Childhood. (*Archiv. für Kinderheilkunde.* I. and II. Heft. 1902.)

Dr. Grosz strongly urges the importance of carefully controlling the use of alcohol in the treatment of children. Parents in the poor as well as in the wealthy classes are, he thinks, prone to encourage its use and physicians are too frequently lax in directing how and when stimulants should be given. The writer quotes cases which occurred in his service at the Adèle Brody Hospital for Children during the past two years mentioning 4 cases of cirrhosis of the liver, all traceable to habitual indulgence in alcohol. Grosz believes that epilepsy and chorea may be induced by alcohol, and he holds the view that the importance of a too free use of stimulants in childhood is underrated as an etiologic factor in the study of neurasthenia. Concluding, he urges the importance of unanimity among physicians as to indications for the use of alcoholic stimulation in childhood, and he strongly advises them to combat the erroneous ideas which lead to the employment of beer, wine and brandy, etc., in rearing children.

The Intercommunicability of Human and Bovine Tuberculosis. (*Editorial in the Medical Record.* No. 1653.)

The editor cites the conclusions of Adami as recently published. Concerning infants it is claimed that the statistics which bear upon the continued frequency of tuberculosis in children and upon the relative frequency of intestinal and abdominal tuberculosis in children, must be accepted as conclusive evidence of infection through the milk of tuberculous cows. The same measures which are being taken to prevent gastroenteric diseases in children are of equal efficacy in the prophylaxis of tuberculosis. The editor adds that in Great Britain the vicious effects of Koch's teachings have already become painfully evident.

Welch, Wm. M.: The Efficacy of Recent Vaccinations. (*American Medicine.* Vol. iv., No. 2.)

During a recent epidemic of smallpox in Philadelphia, many of the unvaccinated patients were children under ten years. No vaccinated child under five years of age was received, and few if any under ten. Two older boys with good vaccine scars had the mildest types of varioloid, one having but a solitary pustule. Evi-

dence of this sort while not based on the statistical method is almost always overwhelmingly convincing to the eye witness, whether the latter be medical or lay, that recent vaccination is preventive of variola. In a family of six children, the four younger all unvaccinated, contracted unmodified smallpox. The two older children, of school-age, had been vaccinated as a condition of admission to the school. They were exposed with and to the younger children but did not contract the disease. Episodes of this character could be multiplied.

Champion, S. Gurney and Vaughn, A. D.: A Report of 43 Consecutive Cases of Diphtheria. (*The Lancet.* No. 4117.)

This series of patients was treated almost uniformly with antitoxin and tracheotomy. Of 39 cases thus managed, 29 recovered, the decedents being very young subjects. The larynx was involved either alone or in combination with the pharynx in all the tracheotomized cases. The operation was always done at an early moment and Parker's silver tube invariably employed without anesthesia. Antitoxin was given in large initial doses (6,000 to 8,000 units) and in but few cases was repetition necessary. The great preponderance of laryngeal cases (but 2 were exclusively pharyngeal) is due to the fact that the Norfolk and Norwich Hospital admits only such diphtheritic patients as come under the head of emergency work. The material represents all the admissions during the past two years.

Delherm, Louis: The Effect of Ozone in Pertussis. (*Archives de Médecine des Enfants.* Vol. v., No. 5. May, 1902.)

The writer does not claim that the treatment which he describes is a specific but he thinks that it rapidly diminishes the frequency and severity of the paroxysms.

The first therapeutic experiments were made by Hellet who, in 1892, reported the amelioration and cure of 4 cases of whooping-cough. The writer cites the work of other physicians on this subject, stating that the real promoters of the treatment of pertussis by ozone are MM. Labbé and Oudin who invented the apparatus used to-day in administering the treatment. He made a study of 28 cases of pertussis which include cases of whooping-cough with complications. A description of

Labbé's instrument with explanatory illustrations is given and the method of manipulating the instrument is explained.

Ozone is efficacious during the period of the paroxysmal attacks only, its action appearing to be purely antispasmodic. Three to four inhalations each lasting ten minutes should be administered in twenty-four hours.

Ozone diminishes the symptoms of congestion. Treatment should be continued for two weeks. Administered in the manner described ozone is not toxic and this fact is a strong point in favor of its frequent employment.

Carriere, G.: Cod-liver Oil Lecithinized as a Means of Treating Rachitis. (*Gazette des Maladies Infantiles.* No. 21. May 22, 1902.)

The formula used by the writer in the treatment of rachitis is as follows:

Cod-liver oil (light colored) 1. litre.

Lecithin of fresh eggs 1. grm. 10.

This equals about .05 of lecithin to the teaspoonful. Dose 1-4 teaspoonsfuls.

This preparation administered to five rachitic children under two years was followed by cure in from four to six months thus far without the occurrence of a relapse.

Leroux, Charles: The Danger of Administering Meat to Children with a Tendency to Arthritis. (*Gazette des Maladies Infantiles.* No. 24. May 22, 1902.)

Leroux describes 5 cases ranging from eight to fifteen years of age; all of these were the subjects of digestive disturbances, three having eruptions such as facial acne, urticaria and prurigo. In all these cases an arthritic family history existed, the children eating abundantly and receiving meat more than once daily. He thinks that the diet of children having an inherited tendency to arthritis should be strictly regulated, meat to be given in small quantities, milk and vegetables forming the chief articles of food.

After weaning, the giving of meat should be postponed as long as possible and later on it should only be served once a day, preferably in the morning. The evening fare should be light, consist-

ing of broth, vegetables, cream, fruits, etc. Much water should be taken and massage and physical exercise indulged in.

He recommends vichy water as a means of counteracting hyperacidity.

Cozzolino, A.: On the Vegetation of the Bacterium Coli Commune in Cow's, Goat's, Ass's and Human Milk. (*Archiv. f. Kinderhk.* Vol. xxxiii., No. 3-6.)

The four varieties of milk were obtained in as nearly sterile a manner as possible, and then submitted to fractional sterilization for eight days at 55-58° C. The tubes were then inoculated with the bacterium coli commune in equal amounts, and plates poured and counted after they had been fourteen, twenty-four, forty-eight and seventy-two hours in the thermostat; also after six, seven and ten days. The results showed a decided difference in the development of the bacterium coli in human milk and in the other milks, in that it suffers an inhibition in its growth and even a diminution in numbers during the first twenty-four hours in the former, while it grows rapidly in the latter. After about forty-eight hours the difference ceases to exist. It appears that human milk is not so good a culture medium for the colon bacillus as are the other three varieties. This circumstance, together with the slightly marked power of becoming acid which is characteristic of human milk, may account for the fact that breast-fed infants are less often attacked with gastroenteric disturbances and that these are less severe and fatal in their course than is the case with artificially fed infants. Finally the author is well aware that these results acquire their full value only when they are considered in the light of the fact that in the gastrointestinal canal the bacterium coli comes in contact with the milk only after the digestive juices have already acted upon it.

Rochester, De Lancey: Medical Inspection of Schools. (*Buffalo Medical Journal.* No. 668.)

He speaks incidentally of the epidemic of measles which prevailed during the present year in Buffalo, and of the indifference of public opinion toward limiting it, as shown by the absence of legislation upon the matter. The least that might be done would be to disinfect the schools during the summer vacation. Any state of affairs which permits measles to thrive might likewise favor an outbreak of scarlet fever or diphtheria.

Schlossman and Peters: On the Frequency and Cause of Death in Sick Infants Treated in Institutions. (*Archiv. f. Kinderhk.* Vol. xxxiii., No. 3-6.)

From July 1, 1900, to June 30, 1901, three hundred infants (under one year of age) were admitted to the Dresden Children's Polyclinic, and fifty-three died. All the deaths occurred in bottle-fed children, while ninety-three breast-fed infants developed no case of severe illness. Ten deaths occurred during the first twenty-four hours after admission; ten during the second day, and five during the third day; that is, twenty-five died before the institution treatment could take effect. Eight children died of diseases which gave an absolutely fatal prognosis from the first, such as: Umbilical sepsis, tuberculosis, meningitis, hydrocephalus, and multiple fractures following traumatism. Twenty deaths were due to diseases which were not prognostically hopeless, but which the treatment did not prevent: pneumonia, gastroenteritis, nephritis and general atrophy.

The material was of the worst, and the hygienic conditions in the institution not of the best; the good results are due to the fact that breast-feeding was used. This must prove an indispensable factor in every infants' hospital.

Forbes, A. Mackenzie: Intracutaneous Vaccination. (*The Montreal Medical Journal.* Vol. xxxi., No. 4.)

Thirty cases were vaccinated by the intracutaneous method which consists in injecting the virus within the thickness of the skin, the criterion as to depth being that the inserted needle shall be visible through the cuticle. The instrument, which enters for the depth of half or three fourths of an inch causes no more pain than does scarification and produces a temporary wheal. The virus of one or two tubes diluted with a few drops of distilled water constitutes the amount of one injection. During the first three or four days a hard shotty papule is present at the site of the original wheal. This is then replaced by a vesicle. There are slight evidences of a local reaction in pain and irritability with production of a hyperemic areola of varying size. Nearly one half of the cases thus vaccinated were failures, but the series was

practically one of revaccinations. Of three primary vaccinations, two were successful.

Ausset, E.: Rachitis and Sterilized Milk. (*L'Echo Médical*. No. 20. May 18, 1902.)

Ausset says that the question raised by the Society of Pediatrics as to the part played by sterilized milk in producing rachitis is one of the greatest importance. He considers that Comby holds exaggerated views in regard to this matter and quotes the latter's opinion that breast-fed infants are free from this disease.

Ausset writes that the deformities resulting from rachitis represent a late form of the disease and that previous to these perceptible signs, microscopic lesions of the bones and of other organs exist. Studying the evolution of rickets, he says a chronic gastroenteritis is always found to be causative. He is inclined to believe that in the few cases of acute rachitis following infectious disease intestinal disease antedated the infection, but was overlooked. He thinks that a systematic examination and microscopic study of the bones in all cases of death from chronic gastroenteric disease in infants who evinced no rachitic deformity of the bones, would demonstrate thickening of the periosteum, abnormal vascularization and involvement of the marrow, provided, of course, that the gastroenteric disease existed sufficiently long to occasion lesions. The writer records 682 cases observed by him; of these, 456 were bottle-fed, 59 breast-and-bottle-fed and 167 exclusively breast-fed. His conclusions are as follows:

1. It is an exaggerated view to hold that sterilized milk causes rachitis. It is the wrong and injudicious use of the milk that produces the disease.

2. A breast-fed child may become rachitic, if bad hygienic principles cause it to develop prolonged and serious digestive disturbance.

3. It is necessary to establish numerous milk stations where mothers may find, not only good milk but, above all, accurate and stringent directions as to the mode of administering the same. In this way a considerable diminution in the number of cases of rickets will occur.

4. Sterilized milk judiciously given is of the greatest value. In wealthy families its use should be considered preferable to the employment of wet nurses.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

NOVEMBER, 1902.

[No. 11.

Original Communications.

THE MANAGEMENT OF THE FAT PERCENTAGE IN FEEDING DIFFICULT CASES.*

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The present-day effort to simplify methods of infant feeding, while commendable from the point of possibly interesting many practitioners who have hitherto been unable to understand the percentage system, nevertheless fails to bring into play the wonderful flexibility of this valuable instrument of precision—the very feature that renders it so infinitely superior to older methods of combining milk fluids.

In feeding ordinarily healthy infants, almost any combination of the milk solids within the average limits of dilution may prove successful, and thus ratios of fat to proteids corresponding to 4 to 1, 3 to 1, 2 to 1, or 1 to 1, may give excellent results in a large number of normal cases.

Unfortunately, the pediatricist is much more frequently called upon to feed abnormal infants, or those whose digestive organs have been seriously damaged by previous disease or unskillful efforts at early feeding, and it is here that the more delicate manipulation of the percentages of the solids becomes an absolutely indispensable aid in diet regulation, and not the mathematical fad of a visionary theorist.

Since relative underfeeding must be the keynote of the dietetic treatment of all these cases, it stands to reason that in feeding any given infant the largest amount of nourishment possible under the conditions will be secured when the percentages of

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

fat, proteids, and sugar of the food mixture closely approach, but do not exceed, the highest measure of digestive capacity for each of these elements. If 1 per cent. of proteids is easily digested by a certain infant, it may be possible that 1.10 or 1.15 per cent. also is readily assimilated, while 1.20 per cent. may prove too high, as shown by the production of indigestion when the proportion of proteids is raised to this figure. It is therefore evident that a proteid percentage not much above 1.15 expresses for the time being the highest measure of the dilution of proteids which this infant can digest. In the same way the limit of perfect fat digestion may be found at about 1.75 per cent. It is therefore reasonable to conclude that a formula containing 1.75 per cent. of fat and 1.15 per cent. of proteids represents for the time the highest proportions of these two elements of the food which this infant can digest at one meal. It is quite evident, therefore, that simple integral ratios of fat to proteids, like 4 to 1, 3 to 1, 2 to 1, or 1 to 1, offer very inadequate combinations when the natural ratio for any given infant varies so greatly from these simple proportions, and especially when every hundredth of 1 per cent. of either element that could be added represents just so much more food for the starving tissues.

Such infants, with very few exceptions, are the subjects of a more or less severe chronic catarrhal inflammation of the whole, or of some limited part, of the gastrointestinal mucous membrane. Of these, the most frequently occurring and the most difficult to manage are the cases of chronic gastric catarrh, or of chronic catarrhal irritation of some limited area of the upper portion of the small intestine, to which the term chronic high intestinal catarrh may be applied. In some of these latter cases the catarrhal lesion is so close to the stomach that it is often with difficulty distinguished from an essential gastric catarrh, and in some, indeed, the two lesions are in all likelihood associated by continuity of structure. It is impossible at the outset of treatment in any particular case, accurately to estimate the degree of damage that has been sustained by the affected mucous membrane. Some cases that at first sight appear to be dependent upon serious involvement of the mucosa, improve quickly and regain health after a very short course of treatment; others that seem to promise rapid improvement show by their subsequent pro-

gress that the structural damage has been great, and only after months of carefully adjusted underfeeding, during which disheartening periods of relapse or standstill will occur, can a cure be effected and a perfectly satisfactory diet reached.

In all such cases recurring pain after feeding, persistent vomiting or regurgitation of more or less considerable quantities of food soon after the nursing, and the frequent occurrence, during the earlier stages of treatment, of acute exacerbations of catarrhal irritation—these, together with wasting, anemia, constipation, and marked debility, constitute the chief clinical features of this serious condition which is so familiar to us all.

According to the commonly accepted standards, regulation of the diet in such cases chiefly confines itself to efforts to reduce the proteid percentage to such a point as to prevent the appearance of curds in the stools, while attention is but rarely directed to a study of the more careful regulation of the fat percentage. Holt is the only writer upon infant dietetics of recent years who has clearly pointed out that too high a fat as well as too high proteids may be a source of trouble in these cases. There is a distinct danger, however, that in reducing the percentages of both fat and proteids we may reach a combination of milk solids, which, while admirable from a theoretical point of view, nevertheless offers a food mixture entirely too weak to supply a sufficient amount of nourishment to the already starving tissues of the infant. It is with the purpose of suggesting a remedy for this serious defect of low-feeding mixtures that I venture to describe a method by which this deficiency in the proteids may be largely remedied, while at the same time the necessary reduction in the fat and caseinogen percentages may be maintained as long as the requirements of the case demand.

While the simple rules for regulating the fat percentage are readily applied in ordinary cases of feeding, it often becomes a question of considerable difficulty to recognize the disturbing influence of too high a fat in cases in which vomiting is a constant feature of the disease—cases in which the stomach has become so irritable that the slightest interference directly or reflexly acts in provoking vomiting of food at any time during the intervals of feeding. In the severer cases of chronic gastric or chronic high intestinal catarrh a certain amount of regurgitation after many of the feedings must be expected for a consider-

able time, a fact which in conjunction with necessarily low percentages in the feeding mixture explains the slow progress of these cases toward recovery. If, however, a careful regulation of the proteid percentage be not followed by prompt subsidence of pain and by distinct lessening of the vomiting, the influence of too high a percentage of fat should at once be suspected.

While it is quite certain that many of these infants can satisfactorily digest as much as 2, or even 3, per cent. of fat early in the course of treatment, it is equally true that in the more obstinate cases of chronic vomiting a temporary intolerance of any but the very lowest proportions of fat is a factor demanding adequate recognition, lest the mistake be made of ascribing the difficulty to the proteids, and in consequence subjecting the proteid percentage to still further, though unnecessary, reduction. Whether this intolerance of ordinary proportions of fat is to be attributed to idiosyncrasy, or to temporary deficiency or inactivity of the hepatic or pancreatic secretions, I have been unable to determine. I believe that either of these factors, or both, may be at times operative.

It is a curious fact that there seems to be in certain delicate infants a distinct inability to digest cream, when added even in very small proportions to a milk dilution. In several cases that have recently been under my care, it has been impossible in the earlier months to increase the fat percentage of a milk dilution by adding cream in any appreciable amount—in one case, five to ten drops of cream added to a bottle of diluted milk at once producing pain, vomiting and flatulence, with disturbance of intestinal digestion and curdy masses of fat in the stool; and the same experience has occurred with certain infants temporarily fed, for sufficiently good reasons, upon condensed milk, when an effort was made to increase the very low proportion of fat in such a mixture by adding small amounts of fresh cream, as, for instance, half a dram of cream to a bottle of three or four ounces. In fact it seems to me quite probable that the low proportion of fat in condensed milk solutions constitutes one of the factors, in conjunction, of course, with low proteids, that sometimes makes this preparation readily tolerated in certain cases in which more reasonable modifications fail—an experience that I doubt not has occasionally occurred to the mortification of others beside myself.

Moreover, it has been my experience to encounter children of more advanced age who seemed to digest satisfactorily a partly skimmed milk, but suffered from frequent digestive disturbances when whole milk was steadily taken. In one marked instance of this kind, the mother gave the history that in infancy this child could not stand the addition of cream in any proportion to a milk dilution, which was readily tolerated without cream.

I have been at a loss satisfactorily to account for this apparent intolerance of cream, for in the infantile cases that came under my own observation in private practice the greatest care had been exercised to use a cream derived from the same milk by gravity raising, and therefore of the same degree of freshness. Whether the fact pointed out by Freeman, that cream contains a considerably larger number of bacteria than the under milk from which it separates is of any importance in this connection I am unable to decide, but certainly no evidences of gross infection could be noted in the stools, and several experiments made on different days were always followed by similar results. The most rational explanation would be that the additional fat contributed by the cream served to raise the total fat percentage above that which could be normally digested at the time. Some credible support for this hypothesis is given by the fact that later on in the course of these cases the fat percentage could be cautiously raised by beginning with very minute additions of cream and gradually increasing the amount as tolerance was established; and this is not at all unreasonable when it is understood that the addition of one teaspoonful of a 16 per cent. cream to a bottle of three ounces increases the fat percentage by 0.64 of 1 per cent.—quite a considerable advance.

We have not yet attained sufficient skill in the differential analysis of the fat bodies of milk to determine whether the relative proportions of these bodies in the fat of cow's milk differ appreciably from those of the human milk fat, so that speculation on relative degrees of digestibility of the two varieties of fat would be at present unprofitable. Fortunately the practical requirements of the problem are satisfied by increased dilution of the cow's milk fat in cases that manifest an inability to digest proportions approaching those found in human milk.

Apart from this idiosyncrasy of some infants in being unable

to digest reasonable proportions of butter fat, temporary weakness of fat digestion dependent upon feeble activity of the digestive juices is an important feature of all cases of chronic catarrhal irritation of the upper portion of the *prima via*. If required to classify the cases in which this weakness of fat digestion seems to be present, I should assign the most important place to the cases of high intestinal catarrh, giving a much less prominent one to cases of pure gastric catarrh, and, naturally, almost as important a one to the cases in which the two lesions are associated. With very few exceptions, and these probably exclusively in the rare instances in which any form of milk food seems poisonous, the control of the proteid percentage has been greatly simplified by means of differential modification, as described in a recent paper on the subject (*American Journal of the Medical Sciences*, October, 1901). According to the relative proportions of the various percentages of fat, lactalbumin and caseinogen desired, these mixtures may consist of the following combinations of the milk fluids and water: simple cream dilutions; cream, milk and water; cream, whey and water; milk and water; milk, whey and water; cream and whey; milk and whey; cream, milk and whey; and cream, milk, whey and water. Each of these combinations has been employed under appropriate conditions with perfectly satisfactory results. In the great majority of cases the whey proteids seem to be digestible in any possible proportion, whether at a maximum close to 1 per cent., when combined with a very small fraction of 1 per cent. of caseinogen (e. g., 0.10 per cent.), or correspondingly lower when higher percentages of caseinogen are used. Under a diet consisting largely of whey, the stools are usually a light golden brown in color, of a consistency varying from that of thick French mustard, when the caseinogen is low, to that of ordinary well-digested milk stools, as the proportion of the caseinogen is gradually increased; and in many cases in which the muscular tone of the abdominal walls is fairly maintained, natural movements once or twice a day are the rule.

According to this plan of modification the fat is supplied either by cream, cream and whole milk, whole milk alone, or a fat-containing whey. Whether whey carries any fat to the mixture will depend upon its being made from a fat-free separated milk or from milk partially or entirely unseparated. The

calculations given in the paper just referred to are based upon the use of a fat-free whey; they may be easily readjusted for the use of a whey containing fat. Koenig's analysis of whey gives a percentage of 0.32 fat. In a number of analyses I have found that whey prepared from an ordinary 4 per cent. fat milk, without manual expression from the curd, draining away simply by gravity, contains about 1.3 per cent. fat. This very respectable percentage of fat, which seems to be well tolerated by infants, renders this whey a more desirable ingredient of the mixture than that containing no fat, as made from a fat-free separated milk.

By the use of this fat-whey it is possible to obtain a mixture containing a fair percentage of fat without recourse to the addition of cream to the whole milk used to supply the caseinogen percentage. This seems to be of practical advantage in the cases that show intolerance of cream or of the ordinary percentages of fat.

In beginning the feeding of such a case, after thoroughly clearing out from the gastrointestinal canal the remains of recent milk feedings, a few feedings of egg-water are ordered, and these are followed by increasing proportions of whey, until the bottle consists of half whey and half egg-water. The percentage formula of such a mixture would be about 0.65 fat and 0.50 lactalbumin, neglecting the percentage of egg albumen which is immaterial to the problem.

The most rapid method of supplying increasing proportions of fat and caseinogen has been found to be the following. A milk and water, or cream, milk and water mixture of convenient amount, say six and one-fourth ounces (fifty fluid drams), is prepared, to which an appropriate amount of milk sugar or cane sugar may be added. For the cases found to have intolerance of rapid advances of the fat, as shown by the increased regurgitation and pain after the advances in the percentage, plain milk alone should be used in the milk mixture. Beginning with one teaspoonful, increasing quantities of the milk mixture are to be taken in combination with enough whey to make up the total quantity for the feeding.

In formulating the milk mixture the relative proportions of milk or milk and cream to the diluting water must be determined by the rapidity with which it is desired to increase the

percentages of fat and caseinogen. Usually a proportion of about two parts of milk or various combinations of milk and cream to about one part of water offers a very satisfactory combination. Thus we may take about four ounces of milk and two and one-fourth ounces of water to make up the fifty drams; or one-half ounce of cream and three and one-half ounces of milk, or various other proportions of cream and milk. It is quite evident that the fat percentage of such a mixture will vary considerably according to the proportion of 16 per cent. cream used, as is shown in the following table:

Cream, 0 oz.	Milk, 4 oz.	Water, 2 $\frac{1}{4}$ oz.	= F. 2.56; P. 2.56.
" $\frac{1}{2}$ "	" $3\frac{1}{2}$ "	" "	= F. 3.52; P. 2.53.
" 1 "	" 3 "	" "	= F. 4.48; P. 2.50.
" $1\frac{1}{2}$ "	" $2\frac{1}{2}$ "	" "	= F. 5.44; P. 2.46.
" 2 "	" 2 "	" "	= F. 6.40; P. 2.43.

or with a slightly lower proportion of the milk and cream:

Cream, 0 oz.	Milk, 3 $\frac{1}{2}$ oz.	Water, 2 $\frac{3}{4}$ oz.	= F. 2.24; P. 2.24.
" $\frac{1}{2}$ "	" 3 "	" "	= F. 3.20; P. 2.21.
" 1 "	" $2\frac{1}{2}$ "	" "	= F. 4.16; P. 2.18.
" $1\frac{1}{2}$ "	" 2 "	" "	= F. 5.12; P. 2.14.
" 2 "	" $1\frac{1}{2}$ "	" "	= F. 6.08; P. 2.11.

It will be observed that the percentage of fat increases very rapidly in these combinations, while that of the proteids declines very slowly. The rapidity of increase of the fat must be determined upon while bearing in mind that a fair proportion of fat (1.3 per cent.) is present in the whey. Having decided upon the particular combination of milk and cream that will give a rate of increase of the fat commensurate with our estimate of the toleration of the infant, we begin the prescription for the bottle with one teaspoonful of the cream mixture and enough whey (sometimes at first part whey and the balance diluent) to make the desired quantity of the bottle: Thus

R—Cream mixture f 3 i.
Whey f 3 xv.—M.

The calculation of the percentage value of this formula is readily made. The cream mixture contributes $\frac{1}{16}$ of its percentages while the whey contributes $\frac{15}{16}$ of 1.3 per cent. fat and 1.00 per cent. lactalbumin. The relative proportions of caseinogen and lactalbumin may be determined by taking $\frac{4}{5}$ of the protein percentage contributed by the cream mixture for the caseinogen percentage, and adding the remaining fifth to the lactalbumin per-

centage supplied by the whey. In the above combination suppose the cream mixture was composed of one-half ounce cream and three ounces milk. The one dram of this in the two ounces of whey mixture would contribute 0.20 per cent. fat and 0.14 per cent. mixed proteids, the latter of which may be divided into 0.03 per cent. lactalbumin and 0.11 per cent. caseinogen. The 15 drams of whey would contribute 1.22 per cent. fat and 0.93 per cent. lactalbumin and the total mixture of the bottle thus contains fat, 1.42 per cent.; proteids, 1.07 per cent., consisting of 0.96 per cent. lactalbumin and 0.11 per cent. caseinogen. Two drams of the cream mixture and fourteen drams of whey would give fat, 1.54 per cent., proteids, 1.15 per cent., consisting of lactalbumin 0.93 per cent. and caseinogen 0.22 per cent.

In these combinations it will be noted that for each additional dram of cream mixture, the total quantity being kept constant at two ounces, the fat percentage advances 0.12 per cent., while the total proteid percentage is increased by only 0.08, or the fat increases one and one-half times as fast as the proteids. In many cases this rate will not be found to be too rapid at the start, and until a fair percentage of fat (2.50 to 3) is reached. But in the cases showing great susceptibility to fat increase it will be found that a slower rate of increase of the fat will be attended with less or no disturbance of digestion. When the cream mixture contains only 4 per cent. cream (whole milk), as shown in the second table, the relative rate of increase of fat to proteids would be as 0.06 to 0.075.

If whey from fat-free milk were used, the fat percentages would begin at a much lower figure (0.14) but the relative rate of increase would be as 0.14 to 0.08 since no fat would be removed by reduction in the quantity of whey. In the cases most intolerant of fat increase I am thoroughly convinced, as Holt has already stated, that a plain milk dilution offers a means of more rapidly increasing the caseinogen percentage than any other combination.

This fact was very suggestively emphasized in one of my experiences during the past winter. The baby, a boy, weighing about eight pounds at birth, was first seen at the age of seven weeks, after the usual history of unskillful feeding on all sorts of foods and milk mixtures. The weight then was seven pounds, one ounce. He was suffering from a high intestinal catarrh,

with possibly some involvement of the stomach as well. The above plan of feeding was adopted, and while gain in weight, as shown by the chart, was steady from the start, it was found impossible to get him to take comfortably in a bottle of $2\frac{1}{2}$ ounces more than 3 drams of a cream mixture of 50 drams composed of cream $1\frac{3}{4}$ ounces, milk 2 ounces, and water $2\frac{1}{2}$ ounces, containing percentages of 5.76 fat and 2.28 proteids. At this point the percentages of the bottle were fat, 1.97; proteids, 1.19, consisting of lactalbumin 0.92 and caseinogen 0.27. For fully two months the amount of cream mixture that could be taken remained about 3 to $3\frac{1}{2}$ drams. Finally on the ground that 2 per cent. of fat was the limit of the fat digestion, a simple whole milk dilution was made, containing 2.56 per cent. of fat and proteids, and it was found that the number of drams of the milk mixture could be very promptly increased to 6 in a 3 ounce mixture, in which the caseinogen percentage had been advanced to 0.51 per cent., about double what it had previously been, the lactalbumin slightly declined to 0.88 per cent., and the fat suffered reduction from 1.97 to 1.61 per cent. Notwithstanding the increase of caseinogen and the decrease of fat, he gained more in the following two weeks than in any previous fortnight, as shown by the gains of each two weeks from the start; $1\frac{1}{2}$ oz.; 5 oz.; 7 oz.; $11\frac{1}{2}$ oz.; $5\frac{1}{2}$ oz.; $7\frac{1}{2}$ oz.; 8 oz.; $8\frac{1}{2}$ oz.; $1\frac{1}{2}$ oz.; and finally, for the two weeks following the change to whole milk, 13 oz. The quantity at a feeding was rapidly increased to 4 oz., $4\frac{1}{2}$ oz., 5 oz., and $5\frac{1}{2}$ oz., the same ratio of milk mixture to whey, 1 to 3, being maintained. At this point the baby had improved so greatly that another effort was made to introduce cream into the milk mixture, and in a short time the quantity was raised to 1 ounce. The milk mixture, which had been doubled and then trebled to permit of increasing quantities, consisted at last report of

Cream, 1 oz.

Milk, 12 "

Water, $5\frac{3}{4}$ "

$18\frac{3}{4}$ oz. = 150 drams, with percentages of 3.41 fat and 2.75 proteids. The bottle now consists of

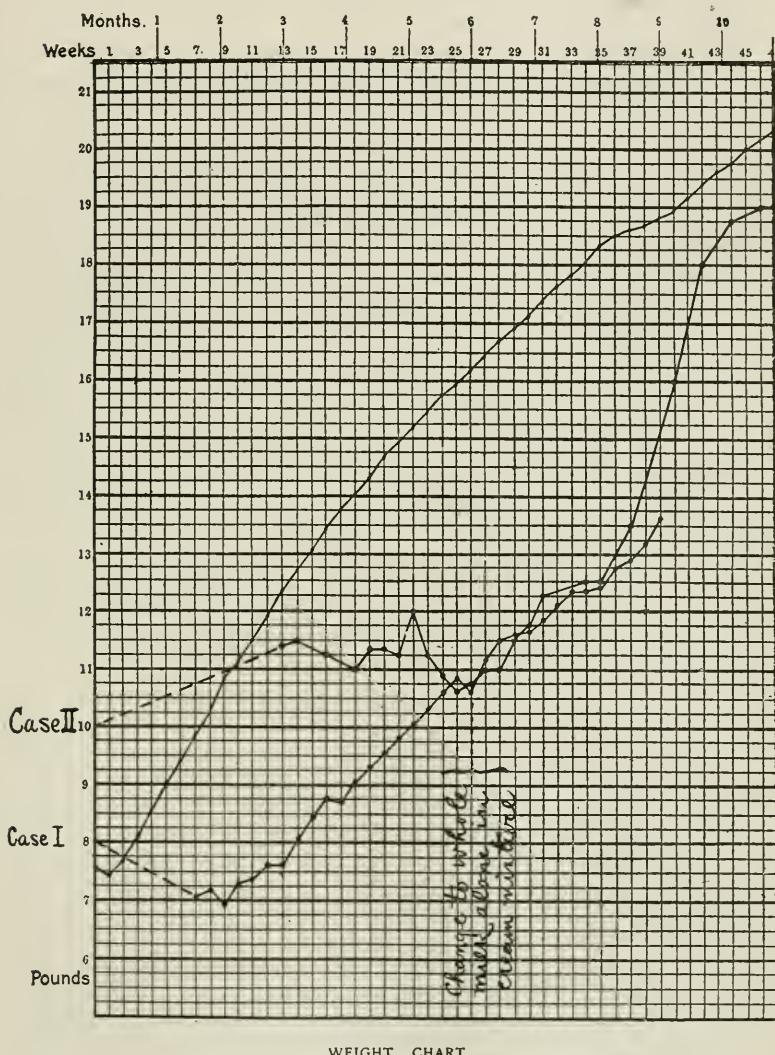
Cream mixture, $2\frac{1}{2}$ oz.

Whey, $3\frac{1}{2}$ "

6 oz.

given every 3 hours; 7 bottles in the 24 hours, the resultant

percentages of which are fat 2.18; proteids 1.73; lactalbumin 0.81; caseinogen 0.92. It is a curious feature of this case that



quite recently another effort to increase the fat percentage above 2.18 has proved unsuccessful, showing how very close to 2 per cent. this baby's digestive factor for fat still remains.

The sugar percentage has been taken care of by adding appropriate quantities of sugar from time to time, but reference to this has been omitted here, as having little bearing on the special points under discussion.

This has been one of the most trying cases of feeding I have ever encountered; the practical results, except as regards weight, which will now be rapidly made up, have been the most satisfactory. Despite the marked underfeeding which has been necessary until very lately, the average gain in weight has been steady and has averaged a pound a month, until recently when his teething has produced some disturbance and there has been a slight faltering in the curve. The proportions of food, however, are now being rather boldly increased and the baby seems ready to take it. At the present writing his weight at the age of nine months is thirteen pounds, one ounce; he is bright, active, of splendid color and firm flesh, though not yet very plump. He has already cut eight teeth, shows no signs of rachitis, has one movement a day, usually without solicitation, is constantly trying to stand on his feet and sleeps well all night, waking once for a bottle.

The weight-curve of a healthy infant (see chart, case II) fed according to the same method shows how rapidly weight may be gained upon a milk and whey mixture under more favorable conditions.

In conclusion I would emphasize two points that have been brought out:

1.—In cases of chronic gastric or chronic high intestinal catarrh, in which underfeeding for a considerable time becomes necessary, the most satisfactory results may be obtained by the use of whey mixtures, in which the deficiency of proteids in ordinary modifications is supplemented by a high percentage of lactalbumin.

2.—In many of these cases unusually low percentages of fat must be given, and for this purpose dilutions of milk without cream in conjunction with a fat-containing whey offers the most expeditious means of increasing caseinogen and of keeping the fat percentage within the bounds of digestive tolerance.

THE PROTEIDS OF MILK.*

BY HENRY DWIGHT CHAPIN, M.D.,
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At the meeting of this Society, held at Niagara Falls, in 1901, the writer incidentally mentioned an analysis of woman's milk in which the total proteids were stated to consist of casein 1 per cent. and albumin .5 per cent. At that time it was suggested that the proportion of casein should have been .5 per cent. and the lactalbumin 1 per cent. In other words, that the proteids of woman's milk consist of about one-third casein and two-thirds lactalbumin, Koenig's analysis being cited as authority.

Since then, in looking over many analyses of the milk of various animals, to see if there was any particular ratio between casein and lactalbumin, some interesting figures were obtained.

It appears that different methods of analysis have been used by different chemists, which accounts in part for the different ratios that have been published.

In some methods total proteids ($N \times 6.25$) have first been determined, and then the total substance precipitated by cold dilute acetic acid, which is called casein. The difference between total proteids and the casein thus obtained has been called lactalbumin. In other methods the quantity of proteid precipitated by cold dilute acetic acid has been called casein and the quantity of proteid precipitated by boiling with acetic acid, after the casein was removed, has been called lactalbumin.

The wide differences in results and ratios between casein and albumin, reported by different chemists, have been the result of these differences in methods employed.

Van Slyke, who made a careful study of ratio between casein and albumin in cow's milk, made 106 analyses in triplicate of over 200,000 pounds of the mixed milk from 1,500 cows during a whole season, reported as late as 1893 that the albumin of cow's milk went as low as .56 per cent. and as high as .85 per cent., the aver-

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

age being 3.76 parts of casein for one of albumin. The albumin in all these analyses was determined by "difference." In 1894, with improved methods of analysis, the proteids of cow's milk, other than casein, were found to be albumin .28—.38, albumose .30—.50, only half as much albumin as previously reported.

In his report Van Slyke says: "I wish to call attention to the crude nomenclature in common use in stating the results of milk analysis for nitrogen compounds. It is an almost universal custom to call the total nitrogen compounds of milk casein. It would be quite as correct to call the fat of milk palmitin, or some similar name. The wrong use of the term casein leads to much confusion and it is highly desirable that we should use a more discriminating nomenclature. It is also desirable that in making analyses of milks, pains should be taken to separate and determine the different kinds of nitrogen compounds, since our knowledge of these compounds is far from complete."

In 1897, Babcock and Russell discovered a proteolytic enzyme in cow's milk, and subsequently in the milks of every species of animal that could be obtained. To determine the effect of this enzyme, the casein and albumin were separated by boiling with acetic acid, and the character and quantity of the remaining proteids were carefully determined. These proteids were classed as albumoses and peptones. From time to time the milks, that had been treated so as to prevent bacterial growth, were analyzed to determine the rapidity of the proteolytic changes, which were shown by an increase in quantity of albumoses and peptones. These changes took place slowly and the natural enzymes of milk, as far as can now be seen, have no practical significance. The analyses made in these determinations are of great value, however.

It was found that all milks contained greater or less quantities of albumoses and peptones, and quite contrary to the generally accepted belief, over *one-third* of the total proteid of the milk of six different women consisted of albumoses and peptones. The table herewith shows the exact quantity of total proteid and of albumoses and peptones in the different milks examined, and in a number of samples of cow's milk of different degrees of richness.

In the following analyses only the cow's and goat's milk were the mixed secretion of several animals.

	Total Proteid.	PROTEIDS OF COW'S MILK.			
		Albumoses and Peptones.	Other Pro- teids. By Difference.	Total Proteid.	Casein.
Sheep	4.75	0.58	4.17		
"	4.43	.62	3.81		
"	3.75	.62	3.13		
"	4.75	.56	4.19		
Rapid Growers.	5.00	.62	4.38	2.87	2.12
Goat	4.87	.37	4.50	3.18	2.68
Pig	4.51	1.06	3.45	3.25	2.50
"	4.37	1.00	3.37	3.31	2.44
Mare	1.75	.56	1.19	3.43	2.87
Burro	1.54	.62	.92	3.43	2.87
Human	1.75	.62	1.13	3.50	2.81
"	1.75	.62	1.13	3.56	2.68
"	1.68	.62	1.06	3.62	2.94
"	1.68	.56	1.12	3.62	2.56
"	1.75	.62	1.13	3.61	2.75
Half-bred Buffalo	3.00	.25	2.75	3.75	2.87
Cow	3.18	.25	2.93	4.50	3.50
					.44
					.56

It is possible that the cause of the difference in percentage of casein reported in woman's milk may be found in the following statement by Wynter Blyth, an English authority on food. "The easy separation of the casein and albumin by acetic acid and carbon dioxid only applies to the milk of cud chewers; with human milk, the milk of the horse or ass, the process gives no good results. When treated the same way the casein appears to coagulate, but it is in a state of such fine division that nearly all of it remains suspended in the liquid, and filtration through paper becomes impossible." It is thus quite possible that in the older analyses a portion of the casein of woman's milk has been classed as albumin.

It will be evident that until the *composition* of the different proteid bodies found in milks is discovered, and some uniform methods of separating them are agreed upon, comparing milks by analyses made by different methods may lead to erroneous conclusions. Whey and cream mixtures may not be such close imitations of mother's milk as have been supposed. At present the comparison of milk analyses for proteid is of little use except by showing total proteid and thus the potential food value. The primary object in infant feeding is to increase the number of cells in the body. These all contain phosphorized proteids. Albumin does not contain phosphorus, so, theoretically, it is not

fitted for the sole proteid of a diet for any animal. A dog will die of starvation if fed on albumin alone, or in combination with fats and carbohydrates. Albumoses and peptones are transformation products derived from any form of protein, and are not such distinct bodies as nucleo-albumins or albumins. With the present limited knowledge, it is a question whether it is wise to attempt to introduce into practical infant feeding methods that call for mixtures of different forms of protein supposed to exist in milk.

In some material, which will be published shortly, I expect to show that the differences between the milks of different species of animals are due to the fact that each milk is highly specialized, having functions beside simple nutrition, and that in the study of substitute feeding this fact must be recognized.

DISCUSSION.

DR. CHAPIN.—I think it is a common fault to call simply for creams. Now cream is one of the most inconstant things in the world and unless you have a laboratory with a centrifugal machine for the separation you are never certain about the cream. I have had commercial cream assayed and found that it may run 15 per cent. butter fat, again 18 and again 20. Two years ago I presented a method by which you can get a cream of known strength at home. It is based upon the "deep setting" process. The cream is put into a cylinder and allowed to stand for a number of hours, when nine-tenths of the butter fat will be on top. You must take all the cream and a certain portion of skim-milk, and then you get a cream of pretty constant strength. You do not care whether you are dealing with rich milk or poor milk, in the cylinder you get nine-tenths of the fat on top. The physician, then, instead of directing the mother to buy so much cream, tells her how to get it. The first ounce is taken out of the bottle with a teaspoon and then the ounce dipper, devised by me, is used. When the deep setting process has taken place you can tell it by the cream line. Each ounce has a certain fixed relation between the fats and proteids. The cream from deep setting is a great advantage over the commercial cream. I have given the instrument maker formulæ which he sells with the dipper. I find out how much the baby can digest and then figure the percentages. We must first find out how much the baby *can* digest, not what it *should* digest. I think we have been too theoretical because the babies vary so much in their digestive powers.

DR. WESTCOTT.—How do you make your calculation?

DR. CHAPIN.—If I want to have 3 to 1, for instance, I take the 12 per cent. cream; there I have fats 12, proteids 4 and sugar 4; then I take 1 part of this cream to 3 of the diluent, which gives a dilution of 4. By means of the Babcock test you can know the strength of your milk. You can take the milk to a creamery and have it tested by the Babcock method, or you can make the test in your office; we have it at the hospital. We need simplicity in the matter for home modification.

DR. HOLT.—Did I understand Dr. Chapin to say that it does not make any difference whether we are dealing with a 5, 4, or 3 per cent. milk, that the upper strata will contain the same amount of fat?

DR. CHAPIN.—No; that the ratio between the fats and proteids is about the same.

DR. HOLT.—I have come to practically the same conclusion as Dr. Chapin. The thought that interests me most is the short length of time necessary to allow milk to stand in order to get the cream in the upper part. People who have their own cows, for instance, and who are using the milk as it comes in fresh, how soon can they use it? I had a great many examinations made of different layers, taking four ounces at a time. I have found that after four hours' standing, if the milk were put into an ordinary milk bottle, practically all the cream would rise to the upper fourth. The proportions that Dr. Chapin found are practically the same as I found.

The main point in Dr. Westcott's paper, is the large number of children that do badly on high fats and low proteids. I believe if there is any one plan by which more children have been wrongly fed than any other, it is the facility with which fats can be increased, irrespective of proteids. Whereas a practically healthy child can take a high percentage of fat, in a child whose digestion is bad, you must cut down the fat a great deal, and much lower in summer than at any other time; it is probably the chief mistake we make. I think one reason that the mistake is so often made is the feeling that by increasing the fat we overcome early constipation. Now, while early constipation is no doubt an important matter, I am convinced that it is due to low total solids in the food and to nothing else. You must not expect two large yellow movements as in a child that is nursing from the breast. As long as the baby's bowels move every day I care not whether the size of the movement is a teaspoonful or ounces. If the baby is comfortable, constipation will disappear as the total solids are increased whereas if the physician feels that the constipation is abnormal and begins running up the fat rapidly he gets into trouble. I believe it is a mistake that so many make who think that the milk laboratory is of no value. It is so difficult to get these children straightened out when they have once gone wrong.

I think what Dr. Westcott says about the whey is a very good thing. We cannot predigest the fat and yet must keep it up,

DR. BUCKINGHAM.—I want to add my testimony to that of Dr. Holt and Dr. Westcott as to the harm done by too high a percentage of fat. It is the most common mistake that is made in feeding babies.

DR. MILLER.—I should like to endorse what Dr. Holt has just said about the amount of cream that rises from milk in a short time; the amount is quite uniform. The test for fat can be made by anyone in his office with the ordinary centrifugal machine. I should like also to express my appreciation of Dr. Chapin's dipper. I have found it a valuable and ready means of removing the cream, and it is far superior, because more easily worked, to the siphon. I have found that in treating the summer diarrheas of children the great difficulty in commencing milk has been the poor fat digestion of these infants, and, on this account, I sometimes use condensed milk because of its low percentage of fat. The indigestion of fat is not, in my experience, shown so often by vomiting, as it is by the presence of fat in the stools. For this reason I often find skimmed better than whole milk in summer diarrheas.

As to the use of whey, while I believe it is a very valuable food for sick infants, yet, it seems to me, as a method of feeding healthy babies, it adds to an already complicated process. The modification of milk has become so complicated that mothers refuse now to carry it out, and, it is a very difficult thing to make good whey. I have found, too, that in feeding babies on whey alone that they often pass a small amount of curd, for it is very difficult to get all the curd out of the whey. Then too, the whey must be pasteurized to destroy the rennin, another thing for the mother to do. When I first used whey, I often found the mothers showed me the bottle with the milk coagulated by the rennin of the whey. For these reasons, I think, whey can only be of service in infants who cannot manage ordinary milk, and is not necessary in normal children.

DR. COTTON.—When we write a prescription do we know what the patient gets? There is an interval between the writing of the prescription and administration of the dose. In preparing milk for babies each case must be made a problem itself and the doctor must do the work with his own hands, or his assistant must do it under his advice. We must ascertain what kind of milk we are using. There are hundreds of milk-men, delivering all kinds of milk. Every physician has a centrifuge in his office and ought to have a Babcock machine. When we get in the habit of doing this work, we are more ready to analyze breast milk and that is what we should be ready to do. When the milk disagrees we must analyze it and endeavor to remedy the defect. We must try to bring the mother's milk into proper relation with the child's digestive powers before resorting to the use of other milk. It all means one thing, the thing that Holt and Rotch have been urging for years, and that is definite percentage feeding. I

agree with all that has been said with regard to the loading of the child with fat.

DR. KOPLIK.—Meigs of Philadelphia, in his cream mixture, advised that the milk be put aside for three hours in a cold place. If my patients are so situated that they cannot obtain bottle milk, I advise them to put the milk aside for three hours and then take off the cream.

DR. TOWNSEND.—I agree with Dr. Chapin that the greatest simplicity in the modification of milk is desirable, not only for the physician who may not be a mathematician and cannot carry the formulæ in his head, but for the nurse, and most of all for the baby. I have given up the use of the siphon which is in some hands a dangerous instrument. I have not used Dr. Chapin's dipper, which I have no doubt is a very good thing, but I have the top milk simply poured off. I have found by analyses that the upper quarter poured off contains about 10 per cent. of fat, and the upper half 7½ per cent. of fat.

As to the whev, it seems to me that the manipulations necessary in making it are undesirable. Where it is necessary to use low percentages of proteids and fats I have found the method of adding white of egg a very good thing. It adds to the nourishment of the mixture and puts little work upon the digestion of the baby. Of course as we raise the percentage of milk albuminoids we can gradually dispense with the egg.

I want to speak of a case that illustrates the fact that babies are not machines and may not follow any rules. The patient a seven months old, healthy child, was taking top milk and barley water, when it began to spit up a little of its food after each feeding, but was gaining weight and the bowels were all right. I modified the food in various ways, reducing the fats, but without any effect. At the suggestion of the mother, who said her former child did the same thing, I put the baby on pure milk, when it stopped the spitting up at once. This simply shows that we cannot always reason about babies theoretically, and we must modify our food to the baby, and not expect the baby to take a certain modification because it is theoretically correct.

DR. EDSALL.—In connection with the class of cases reported by Dr. Westcott, in which there is disturbance of the stomach, rather than of the intestine, from undue quantities of fats, I think that it is worth while to direct attention to the recent work of Vollhard, which has shown that there is a fat-splitting ferment in the gastric secretion. He worked entirely on adults; and his studies show that the ferment acts only on fats that are well emulsified, and only in the absence of any notable amount of hydrochloric acid. Hence, it is evident that the ferment is not of much importance in the adult. But the young child takes all its fats in a well-emulsified form; and the acidity of its gastric contents is, at most, low even in health. It seemed

possible to me, therefore, that this ferment is chiefly useful in the child; and that in the adult it is only a remnant of a function active in childhood. I have satisfied myself, at any rate, that the ferment is present in the child, and that in some instances it is very active. I have attempted to provide a method for determining its presence and activity, clinically. Vollhard's method takes several days to carry out, the main difficulty being in drying the mixture in which the ferment has been acting, so that it can be extracted with ether. I have used acetone instead of ether, because it has the property of dissolving fats in watery solution. With this procedure, I can carry out the examination in a very short time; and, if it proves to be accurate, the method will be suitable for clinical use, and may be of interest in helping to determine a cause for disturbances such as those which Dr. Westcott mentions, and also possibly in influencing diet.

In connection with the figures for milk-protein in Dr. Chapin's table, I would say that I do not think that we should make up our milk-mixtures on the basis of such figures. If I remember correctly, they show, in all but one instance, less than 3 per cent. of protein. This certainly does not fairly represent the milk that we ordinarily use, more particularly in the better class of patients. It has been thoroughly demonstrated that such milk usually runs higher, and I have myself made 150 or 200 Kjeldahl nitrogen estimations of milk, and in only three or four instances, I think, did I find the protein running below 3 per cent. In almost all cases, it was as much as 3.5 per cent. and frequently it was as high as 4 per cent. the average being in the neighborhood of 3.75 per cent. This was good, mixed dairy milk; and I think that these figures are much closer to those of the milk that we ordinarily use. I also do not agree that the fats in dairy milk are likely to run pretty evenly, if milk from the same source is used. I have seen fats that were estimated daily, in milk from the same dairy, vary from 3 to 5½ per cent., from one day to the next, and decided variations are common. Our milk mixtures are made from day to day, and are, therefore, subject to such variations.

DR. FREEMAN.—I have been rather surprised that the one really definite method we have of getting cream has not been mentioned at all, and that is the method of ordering definite percentage creams from the laboratories, and I think where we have the laboratories we are foolish not to use them, so that we can know just what we are getting. I think in the country a good way is to have milk from the evening milking left over night and then use the skimmed cream, which is 16 per cent., and dilute to get the desired percentage. There is no objection to having it kept twelve hours, if kept in a not very warm place, for in clean milk the bacteria usually diminish during that period. I noted some years ago that in several observations

there was a constant diminution in the number of bacteria in milk for twenty-four hours after milking. Fokker in Germany noticed the same fact in eleven observations. A thorough piece of work on this subject has recently been carried out at Cornell University in which the same facts are observed.

DR. WENTWORTH.—In order to escape the charge of plagiarism, I should like to say that I have recently sent an article to the press in which I made practically the same statements that have just been made by Drs. Chapin and Holt, namely, that to insure even approximate accuracy in the modification of milk, it is necessary to determine the percentage of fat in the cream that is used for modification; and that too high a percentage of fat in milk mixtures, frequently causes serious digestive disturbances in infants.

I prefer the Chapin dipper to the siphon for removing cream from milk.

With reference to Dr. Westcott's paper I must say that the results which I have obtained from the analysis of a considerable number of "milk-modifications" have convinced me that it is impossible to procure accurate modifications of milk unless complete analyses are made of the milk and cream used for modifying purposes. I should like to ask Dr. Westcott whether the percentages of fat, sugar and proteids were determined in the mixtures that he has recommended?

Dr. Westcott admits that the fractional subdivision of the ingredients in milk-mixtures is only needed for infants that are unable to assimilate the ordinary milk-mixtures. My experience has convinced me that the best thing to do is to procure wet nurses for these infants. It is of the utmost importance in these cases to avoid as much as possible, any further loss of time.

DR. GRIFFITH.—I wish only to call the attention of the Society to something that all of us know but are apt to forget, namely, that the use of whey dates back many years. The results of my own experience with it have been excellent. I have repeatedly found a mixture of whey and egg albumen agree and nourish a child when I failed with stronger and fatter foods.

DR. WESTCOTT.—The practical scope of my paper was a limited one and applied only to children that I denominated difficult cases,—that is, cases of chronic gastric catarrh, or of chronic high intestinal catarrh.

I consider Dr. Chapin's cream dipper a very useful device, especially in summer, when both centrifugal and gravity creams are sources of danger. As to variations in the percentage of fat in gravity cream when obtained from milk from the same dairy, and with the same routine method from day to day, I have rarely observed disturbances of digestion as long as the same theoretical formula was maintained. On the con-

trary, when the theoretical formula has been changed often by so little as would be produced by one or two teaspoonfuls' increase of whole milk, disturbances have been found frequently and immediately to occur. This seems to me to indicate that for practical purposes, in home modification at least, the basal percentages in the cream and milk used for feeding any individual case may be assumed as constant, and that theoretical variations in formula obtained by calculation may be considered as actual and relatively corresponding. In support of this it may be noted that a difference of say 0.50 per cent. in the fat of the basal milk would be represented by a variation of only 0.125 per cent. in a one in four dilution, or 0.10 per cent. in a one in five dilution, and that these variations are more apt to be on the side of deficiency, since the constants used in calculating formulæ are, if anything, maximum values. The error is, therefore, likely to be on the safer side.

I agree with Dr. Chapin as to the principle of working backward, and very often use this method of determining percentages conditioned by the older method of combination. All the percentages given in my paper were worked out in that way.

Dr. Holt has spoken about constipation which I agree with him is due principally to the low total solids.

It is an interesting fact, and as I believe not generally understood, that in the chronic catarrhal cases, gradually increasing constipation is a forerunner of an acute exacerbation of the disease. These annoying interruptions may occur at first as frequently as once a week, but as the case goes on to recovery they happen less frequently and with constantly lessening severity. The mother soon learns to anticipate a fresh exacerbation by the fact that for several days beforehand the bowels become more sluggish and difficult to move.

As to Dr. Miller's remark about using whey for feeding healthy babies: I did not mean that at all. It is only where the casein proteid that can be digested is too low to supply the requisite amount of nourishment that I advocate whey feeding. Generally speaking, a child four or five months old is not getting enough proteid until the percentage of this element reaches 1.50. The case I referred to I did not bring forward as a prize case, but it was a very trying case, and the physical condition of the child is now exceedingly satisfactory. I have on the same chart the curve of another child (marked case II) fed on the same sort of mixture, and the rapidity of weight gained is distinctly shown by the rapid rise of the line. (See chart).

Dr. Miller referred to the difficulty of making whey. This has not proved a formidable task to many mothers under my direction, who with little practice have become expert in making it. What has seemed to us the best method of curding is by the use of the ordinary junket tablet of the household, about one and a half tablets to a quart of milk. After the whey is strained it

must be raised to a temperature of 150° , as Dr. Miller states, to destroy the excess of rennin, which otherwise would cause coagulation of fresh milk mixed with the whey. This preliminary heating is not necessary if partially peptonized milk, instead of fresh milk is to be used in the combination. It is perhaps safer to do it, however, for its pasteurizing effect.

DR. CHAPIN.—As to Dr. Edsall's statement about low proteids, this study was not intended to show low proteids in any class of milk, but how the soluble proteids varied. It is very difficult to establish any ratio between the casein and soluble proteids.

With reference to the use of the laboratory, the majority of students we see do not live within hundreds of miles of laboratories and this simple method will give almost as accurate a cream as the laboratory. What we want are methods that can always be applied.

Nitrate of Silver and Thrush.—If lavages with alkaline fluids and applications of borate of soda correct thrush in the majority of cases, it is nevertheless a fact that often an obstinate case is found which resists this simple treatment. G. E. La Vladimirov (*La Sem. Méd.*, 1902, No. 17) has found that when such severe cases are encountered, they will usually cease after local applications of a solution of silver nitrate, 2 per cent. in water. He begins by detaching with a dry swab of cotton or linen, all possible plaques of thrush. If these be very adherent their tearing off may cause a little bleeding, sometimes considerable, which can easily be controlled by making pressure with a small tampon of cotton. It is necessary to separate all the plaques. After this the application of the silver is made. The child is laid upon its side and into its mouth is passed a pair of forceps bearing a plug of cotton soaked in the silver solution. After a moment another peldorf of cotton filled with chlorid of sodium is used in order to neutralize the excess of the silver. In order to avoid movements of suction which the child may make when the forceps are introduced, the jaws are separated by passing the finger into the mouth on the opposite side and resting it between them. Under the action of the silver nitrate the mucous membrane becomes white in color, which permits one to see whether the forceps have been applied to all parts of the mouth. The treatment should be repeated once a day, whereas the topical applications of borate of soda and other drugs of the same class must necessarily be used several times through the day—which is an inconvenience because it is often difficult to subject the child to mechanical irritation at such frequent intervals. Such disturbances may have a tendency to favor the morbid process (Epstein). One to three washings with the silver nitrate have been sufficient, in the experience of the author, to bring about a complete cure of thrush even in cases in which all other remedies have totally failed.—*Medical News.*

RECURRENT VOMITING IN CHILDREN WITH REPORT OF FOUR CASES.

BY HENRY LARNED KEITH SHAW, M.D.,
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Pediatricists as a rule now accept the existence of a disorder which is characterized by a sudden onset of persistent vomiting without other gastrointestinal symptoms. Gee in St. Bartholomew's Hospital Reports of 1882, was the first to describe this disease as it occurs in children, and he called it "fitful or recurring vomiting." Since then many terms have been suggested, such as "cyclic vomiting," "nervous vomiting," "periodic vomiting," etc.

ETIOLOGY.—Comby in France and Rachford and Starr in this country believe this disorder is only one of the manifestations of a uric acid diathesis. In the nervous system it produces paroxysmal cephalgias, night terrors, etc.; in the genitourinary system it is responsible for hematuria, vesical spasm, incontinence, etc., and in the gastrointestinal tract it gives rise to persistent vomiting. Holt inclines to the uric acid hypothesis. In one of his cases the ratio between the amount of uric acid and urea excreted was carefully studied and there was found to be a marked diminution in the uric acid excreted during the attack. Griffith found the same condition in 2 of his cases but states that his observations were not conclusive. Rachford claims that poisonous leukomaines, paraxanthin and heteroxanthin, are excreted in excess in the urine of patients suffering from lithemic attacks and that they produce the vomiting and other symptoms of this disease.

Marfan is one of the latest contributors to this subject and he lays great stress on the presence of acetone in the urine and vomited material. The acetone in itself has slight significance but it is always the companion of true pathological toxins. In several of his cases he detected the odor of acetone in the first material vomited. This shows that the production of acetone is affected before the vomiting occurs and is a strong argument in favor of the toxic theory. Marcy also attaches much significance to the presence of acetone in the breath and urine. Valagussa in a report of 4 cases of recurrent vomiting, found acetone in 3 of the cases and made no mention of a urinary examination in the fourth. He is a believer in the autointoxication theory. Larned

believes that this condition is due to some toxic agent either from an intestinal autointoxication or from a failure on the part of certain of the excretory organs to eliminate certain poisonous agents which accumulating, produce toxemia. Griffith in 2 of his cases, noticed that the breath had a peculiar odor and that both acetone and indican were present in the urine. From this he concludes that recurrent vomiting is a neurosis of toxic origin connected in some way with faulty metabolism. Holt regards these attacks as nervous explosions due to faulty metabolism. Snow and Whitney incline to the belief that this disorder is some form of gastric neurosis.

There is some unanimity of opinion as to the influence of heredity in the etiology. A neurotic or gouty tendency inherited from one or both parents is acknowledged by nearly all the writers to be the chief predisposing cause. This was very marked in all of my cases. Errors in diet have little etiologic import, although Holt thinks that a diet excessive in carbohydrates has some relation to the outbreaks. In the majority of reported cases the general health of the children was excellent. Marfan has seen this affection occur at the same time in the same family.

The disorder is essentially one of early childhood. Marfan's 25 cases were in children from one to ten years of age. Griffith states that in the majority of cases the first attack occurs during the first three years of life. Sex is said to have little influence and the 4 cases I am reporting, which occurred in girls, may be merely a coincidence.

SYMPTOMATOLOGY.—Prodromal symptoms are not always present. The most frequent are a feeling of lassitude, constipation, headache and anorexia. The prodromes lasted a week in one of Griffith's cases which is rather unusual.

Vomiting.—The most striking and characteristic symptom is the vomiting. This is often the first thing noticed and may be mild, lasting only a few hours, or very severe and continue for several days. It is accompanied by nausea and frequent unproductive retching. The vomiting is excited by the slightest provocation and often without any provocation. The taking of food or drink, or even a change of posture will bring on one of these attacks. The contents of the stomach are first ejected and later a colorless mucus appears which at times is tinged with bile or blood. The reaction is generally acid early in the disease, but it may con-

tain no free hydrochloric acid. The reaction was acid in all of Valagussa's cases. Snow found an excess of hydrochloric acid and Holt detected free hydrochloric acid in several of his cases. Pepper states that the acidity of the vomit has no constant characteristics. In Griffith's cases no mention is made of the reaction. Free hydrochloric acid was found in one of my cases, but it was not present in two others.

Thirst is a prominent and constant symptom, but there is no desire for food. The tongue is slightly coated at the beginning of the attack and becomes red and glazed as the disease progresses.

Abdominal pain is spoken of by Pepper, but the majority of clinicians consider it to be entirely absent in typical cases and claim this is an important diagnostic point. There was no abdominal tenderness in any of my cases. Marfan always found the abdomen retracted, but in Rachford's cases it was distended. Retraction of the abdomen was mentioned by some of the earlier writers and it was present in 2 of Griffith's cases and in 2 of mine. In Larned's 2 cases the abdominal retraction was marked.

Constipation is the rule, but it is not a necessary symptom. It may precede the attack for several days. One of Valagussa's cases suffered for months from alternating diarrhea and constipation, but the attacks of vomiting were always preceded by constipation. Constipation was marked in all of my cases, and especially in case IV. Holt and Griffith mention the frequent appearance of clay colored stools after the attack.

The temperature is only slightly elevated, if at all. Rotch found the temperature normal or even subnormal in his cases. In Marfan's experience it is always in the neighborhood of normal. Pepper states that the temperature may rise just before the attack and a rapid elevation during the attack may or may not occur. Holt lays diagnostic importance to the point that the temperature is seldom over 100.5° F. In Snow's case the temperature rose as high as 105° F. In case II. and case IV., where the children were so very ill the rise of temperature was very slight. In case III., the temperature rose to 103.2° F. Convulsions were observed by Snow in his case but they had probably some connection with the high temperature.

URINE.—The condition of the urine has received careful attention by most observers. Holt, Pepper, Griffith, Valagussa, and Comby, found an excess of uric acid either preceding or during

the attack. Indican has been frequently present in these cases. Marcy calls attention to the fact that indican in large amounts is generally found in the urine early in the attack. Albumin and casts were detected in one of Holt's, Rachford's, Comby's, Griffith's and Larned's cases. Rotch and several other writers make no mention of the condition of the urine. Marfan emphasizes the importance of the presence of acetone, which was found in all of his cases. Acetone was found in 2 out of 4 of Griffith's cases and in 3 out of 4 of Valagussa's cases.

DURATION.—The disease lasts from a few hours to seven or eight days. Marfan's longest case continued for fourteen days and his shortest three days. The duration of Griffith's cases was from two to three days.

The recovery is always rapid, almost instantaneous, in fact. With the cessation of vomiting the appetite returns and all symptoms disappear. When the disease lasts over two days there is apt to be much prostration and emaciation. Even in these cases the convalescence is surprisingly rapid. Holt's patient was frequently better after these attacks than for some time previous.

As the name implies, this disorder is apt to recur. There is, however, no definite regularity in the recurrence. For this reason the designation "recurrent," as applied to the disease, is preferable to the terms "cyclic" or "periodic." Marfan has had several cases where, after more than eight years, there has been no return of the attack. The probabilities are in favor of a recurrence. In Holt's case there was an interval of five to six months and this same interval was present in case IV. The frequency of the occurrence of the attacks is subject to great variations and there is no definite regularity in their return. The disposition to recur diminishes as the child grows older.

DIAGNOSIS.—The history of previous attacks and of neurotic antecedents is of great value in making a diagnosis. The absence of digestive troubles and of objective symptoms, other than vomiting, on the part of the stomach and intestines; the failure of relief of nausea after the attacks of vomiting; the self-limited course; the absence of blood and mucus from the stools; all tend to show that there is no disease or lesion in the alimentary tract.

This disease is not uncommon but it is not always recognized. If the main symptoms are borne in mind the condition is easily diagnosed. In acute indigestion there is generally a history of

error or over-indulgence in diet, and the vomiting gives decided relief. Its course is limited by judicious medication. With appendicitis we get intense and localized abdominal pain and a marked rise in temperature. The vomiting becomes stercoraceous in intestinal obstruction and intussusception. Fecal vomiting never occurs in recurrent vomiting of children. In tuberculous meningitis we get no history of previous attacks and the long prodromal period is wanting. It is sometimes impossible to exclude this dread disease for several days when the course of the symptoms leaves no doubt of the diagnosis. The urine should always be examined to exclude any possibility of organic kidney disease.

PROGNOSIS.—The prognosis is favorable. Two of Marcy's cases died, as did two of Griffith's and one of Holt's. These are the only fatal cases on record, and it can be stated that the danger to life is slight, even though the little patients appear alarmingly ill.

TREATMENT.—The treatment is unsatisfactory, for the disease when started cannot be checked. An early purgative may be of service if it can be retained. The indications are to give the stomach absolute rest and to get the bowels to act. Morphin, given hypodermatically, or chloral administered per rectum, is of value. Marfan found that large rectal injections of normal salt solution, twice a day, gave him the best results. This will allay thirst and keep up the excretion and elimination of urine. When the child can retain some nourishment it is well to give small amounts at frequent intervals. A teaspoonful of malted milk, liquid peptonoids, chicken or barley jelly every twenty minutes, will be tolerated by the stomach and the child can soon be put on a full diet. The treatment between the attacks is that of prophylaxis. All sources of reflex irritation should be removed and all forms of excitement and over-study must be carefully avoided. Plenty of fresh air, with avoidance of exciting and boisterous sports is to be commended. Holt excludes all sugar and sweets and gives a diet composed principally of meat, green vegetables, milk and stale bread. The bowels should move each day and special care be taken to guard against constipation.

The 4 cases cited below will serve as clinical illustrations of this disease. It is regretted that none of the cases occurred in hospitals or institutions where more complete and scientific observations could have been made.

CASE I.—E. L., age three years, girl. An only child of indulgent parents, who are both of a nervous temperament. During infancy she was fed on artificial foods. She has had attacks of vomiting for more than a year past, which came on suddenly without any warning and lasted from a few hours to several days. The child is extremely nervous and excitable and has a most capricious appetite. She was seen in consultation with Dr. MacFarlane during one of these attacks. This attack had come on suddenly a few hours before without any explainable reason. There was no rise in temperature, the tongue was slightly coated and there was no pain or abdominal tenderness. The only symptom referable to the digestive system was the vomiting, except that the child was constipated. The child had vomited nine times since the onset of the attack and the vomited material was mostly mucus and contained free hydrochloric acid. The next day the child was perfectly well. Unfortunately the urine was not examined. The diet was probably at fault in this case. Since her life and diet were more carefully regulated there have been returns of the attacks, but yet they are far more infrequent.

CASE II.—L. M., girl, three and a half years old. The mother has always been nervous and the child has been petted a great deal and is very high strung. She has had occasional attacks of vomiting which have only lasted a few hours. The evening before the present attack she had been greatly excited playing with some relatives. The diet was under very close scrutiny and was not at fault. In the morning the vomiting began and persisted for three days at frequent intervals. There was some unproductive retching. The vomited material contained no free hydrochloric acid, and was mostly mucus tinged with bile. The thirst was intense but she could not retain even a teaspoonful of water. The temperature was 99° F., per rectum, and the pulse 120. She could retain neither food nor medicine. The bowels did not move until the afternoon of the second day, after which an attempt was made to administer chloral by the rectum, but it terrified the child and was not retained. The highest point the temperature reached was 100°, F., per rectum, and the pulse 130. There was a slight abdominal retraction, but absolutely no tenderness on palpation. On the third day the child was able to retain small amounts of liquid nourishment, given at frequent intervals, and on the fourth day begged for food. The urine was strongly acid

and contained no albumin. There was an excess of indican. No test was made for acetone, although there was a very suggestive odor of the urine. There was a thick sediment composed of ammonium urate crystals, which dissolved on the addition of acetic acid and formed large uric acid crystals. This child moved away from Albany and the subsequent history is not known.

CASE III.—A. R., girl of three years. The mother has always been very nervous. Since the child was a year old she has had attacks of what have been called "gastritis." These come on suddenly and the mother stated that the recovery was generally rapid. The present attack began two days after Christmas, but the child had not been allowed any sweets, nor had the diet been extended in any way. The season was one of unusual excitement however. When first seen the temperature was 101° F. and the pulse 134, regular and of good volume. There was no abdominal or gastric tenderness. The child had vomited several times. The first material consisted of curdled milk, but later only small quantities of watery mucus were expelled. This contained no free hydrochloric acid. There was more fever than in the other cases and the highest point reached was 103.2° F. The child was constipated. The urine was acid and contained an excess of indican. The sediment showed no uric acid crystals. The recovery was slower than in the previous attacks, but a week after the first onset the child was playing and on her regular diet.

I have recently been informed that there was a recurrence of the "attacks" during the summer.

CASE IV.—A. B., girl, eight years old. The family history is not good and the mother is insane. The child lives with her aunts. The attending physician has seen her in two milder but similar attacks, in June, 1901, and January, 1902. The aunts state that the child has always been subject to these "bilious" attacks, which are attended with much vomiting. She is said to have always been a very nervous and excitable child.

The present attack came on suddenly the evening of May 24th. She had been feeling perfectly well and had been visiting some young friends where she had played hard all day. The vomiting was the first thing noticed, and this continued at about hourly intervals that night and all day Sunday. The family physician was not summoned until Monday morning because it was thought the child merely had one of her "bilious" attacks. The child

could retain neither medicine nor nourishment. The thirst was intense but no water could be retained. The bowels had not moved. The case was seen in consultation with Dr. Sheldon on Wednesday morning, the fourth day of the disease. The child was in a condition of great prostration. The mind was clear and the pupils normal. The tongue was red and dry. Examination of the heart and lungs was negative. The abdomen was retracted, but there was absolutely no tenderness on deep palpation. The temperature was 99.2° F., and the pulse 130, regular but weak. The vomiting occurred regularly every fifteen or twenty minutes. There was considerable retching and only small amounts of mucus were raised which were streaked with mahogany-colored blood. There was no odor to the vomited material. There had been no movement of the bowels since the beginning of the attack.

The child had slept very little, and appeared alarmingly ill. Large doses of chloral were administered, per rectum, which controlled the vomiting somewhat, and high saline irrigations removed a number of hard scybala.

On Friday, the sixth day of the attack, the vomiting had entirely ceased and the child could retain nourishment. She was much brighter and appeared better in every way, except that the constipation continued. Three days later the temperature rose to 102° F., but there was no return of the vomiting. The appetite was excellent, and after the bowels began to move freely the temperature fell and she has been in very good health ever since.

Treatment of Typhoid Fever in Children.—Durieux (*Le Mois Thérapeutique*, Vol. iii., No. 1, p. 9) states that cold baths should not be given systematically in all cases of typhoid fever in children. Their application is sometimes difficult, and requires careful, intelligent supervision which cannot always be obtained, especially in rural practice. The indication for cold bathing depends much less upon the temperature of the child than upon the state of the nervous system. If there is torpor, restlessness, or irregularity of the heart's action, cold baths will be beneficial. In mild forms of the disease quinin has been used with advantage, and may be given in large doses or in divided doses; it favorably modifies the progress of the disease, lowering the temperature and causing sedation of the nervous system.—*American Medicine.*

BRONCHITIS AND BRONCHOPNEUMONIA IN CHILDREN.*

BY E. W. MITCHELL, M.D.,

Professor Pediatrics, Miami Medical College ; Visiting Physician Cincinnati Hospital, Cincinnati, O.

Next in frequency and in fatality to the disorders of the digestive system in childhood are those of the respiratory system. The importance of the subject justifies its selection for this paper, although the writer has nothing especially new to offer, but merely desires to bring forward for discussion some practical points in the treatment.

One of the most troublesome classes of patients to both general practitioner and pediatrician, are those children who are continually "taking cold." The tendency is often manifested in early infancy as a consequence of a feeble constitution or of such cachectic states as rachitis, syphilis, or tuberculosis. The enormous mortality of such children from bronchitis and pneumonia when they are subjected to bad hygienic conditions, is too well known to need more than mention. In proper surroundings, with good care, the prospect of overcoming the tendency and growing into healthy adults is good. In bronchopneumonia more than in almost any other disease the prognosis depends upon the child's constitution and his environment. Among the better classes, given a child of fair constitution in a well lighted and well ventilated apartment, he is almost certain to recover from an attack of bronchopneumonia, unless it be secondary to a malignant form of an acute infectious disease. In a tenement or in an institution he is very apt to succumb unless he is particularly vigorous. In either case very young infants and feeble children show a very high mortality. Holt places the mortality in private practice at 10 to 30 per cent. In institutions the mortality is much greater. In 461 cases, under three years of age, from two institutions he gives it at 65.5 per cent.

These facts emphasize two points relating to treatment; first, that the prophylaxis rests primarily upon building up the constitutional vigor (increasing the resisting powers); second, the importance of isolation and pure air. The first step in carrying

* Read at Annual Meeting of Ohio State Pediatric Society, Toledo, O., May 27, 1902.

out the first indication is a careful study of the individual child as to his heredity, his environment, his physical condition. Any especial diathesis, such as the syphilitic, the rachitic, the strumous, or the lithemic, must have its appropriate treatment. A large proportion of these children who are subject to bronchitis have adenoids and enlarged tonsils. These hypertrophied lymphoid structures are tissues particularly prone to infection and inflammation and besides the associated weakness of tissue there is the liability to downward extension of the catarrhal process. Furthermore, it is probable that they are frequently a *nidus* from which infection and reinfection of the bronchial tree may occur. The writer includes this as one of the indications for the removal of these growths. The benefit from the removal of such hypertrphies is not always immediately manifested but there is a gradual diminution in the frequency and severity of catarrhal attacks with progressive improvement in general health, provided the child has proper care following the operation. In children who have repeated attacks of bronchitis alone or with bronchopneumonia the throat should receive careful attention to determine if adenoid growths, even if only moderately large, may not be the source of infection.

In the general management of the children who take cold, the chief work is the education of the mothers in the feeding, clothing, bathing, exercising, etc. In the judicious management of all these items lies success. In private practice there are three mistakes which have to be frequently corrected; apartments are kept too warm, sleeping rooms are not sufficiently ventilated, and too much clothing is worn. The physician is often at fault in not giving the mothers sufficiently minute and exact instruction on such points as these. The mother, told that the child must be hardened, often goes to the extreme and exposes the child unduly, with disastrous results.

A simple diet, pure air for both day and night, systematic development of the muscular system are the cardinal principles in building up constitutional vigor. Delicate children and, particularly nervous children, need supervision as to their rest. The midday rest should be made a compulsory part of the day's programme. They should be put to bed early and allowed to sleep late in the mornings. Next in importance for the upbuilding process is the bath. In the early weeks of infancy the regular bath

may be followed by an alcohol rub. Later the bath may be finished by a dash of cold water, followed by brisk rubbing. As they grow older the cold sponge bath should be a regular part of the children's morning toilet. For older children who have the vigor to react thoroughly, the plunge or shower bath may be allowed and is often thoroughly enjoyed.

Of medicinal measures the writer has little to say. If the various hygienic, sanitary and hydriatic measures can be intelligently employed, but little medicine is needed. Cod-liver oil, iron, iodid of potash and sometimes arsenic, are to be used in individual cases according to specific indications. Where there is enlargement of the lymph nodes a course of syrup of hydriodic acid or of syrup of iodid of iron is often beneficial. All drugging which interferes with appetite or digestion is to be avoided.

The "open air treatment" of tuberculosis is teaching both profession and laity to how much greater extent the open air life is possible even in unfavorable climates than has hitherto been believed. If good for *cure*, how much better for *prevention!* As far as possible the class of children of whom we speak, should have an open air life with games, gymnastics and physical culture regulated to their strength.

One most useful measure for furthering the hardening process is going barefooted in summer. No child has had all his birth-right who has been deprived of this luxury.

It goes without saying that prompt and careful treatment of those diseases liable to bronchial complication is of prime importance. Probably no one thing is of so much importance in diminishing the liability to the complication as a very free ventilation. The parents' fear of draughts leads them to close up windows and doors in those diseases, measles and whooping-cough, in which the child should come as nearly as possible to breathing outdoor air.

The frequent cleansing of nasal passages, mouth and throat with nonirritating antiseptic solutions is probably of considerable value in diminishing downward infection.

In the treatment of severe bronchitis and bronchopneumonia the writer is glad that the time honored poultice is going out of fashion and he hopes to see it generally discarded. Yet, there are times when if properly made, not too heavy, not too hot, neatly made, carefully applied, it may be used to advantage, and the

writer still occasionally employs it for a day or two at a time where there is much pain and distress in breathing. As a rule the cotton jacket, either with the oiled silk covering, or made by basting the cotton inside an ordinary undershirt (which is just as good as the oiled silk), is used instead of poultices and with far more comfort to the child and less work for the attendants.

The writer has never been able to see that counter-irritants are of any particular benefit. Cases in which they are not used seem to do equally as well as those in which they are.

The question of alcoholic stimulants is to be decided by the individual case. In severe, and particularly in protracted cases the author believes them to be of very great value, and that often they are to be given in large dosage, but he has occasionally seen consultation cases which were undoubtedly over-stimulated. The amount to be given is to be measured by the effect, which should be to improve the force and rate of the heart, quiet the nervous symptoms and promote sleep. Excessive somnolence or excessive restlessness may be signs of too much alcohol. If the odor appear on the breath it always means that alcohol is in excess.

The control of temperature is a problem by itself in only the minority of cases, but may be in the exceptional case an element of great importance. It is very rarely necessary to give a child antipyretic drugs; in young infants and in feeble children they are especially to be avoided. Hydrotherapy properly applied not only avoids the risk of drugs, but also, while sufficiently moderating the temperature, strengthens the heart and tones up the nerve centres with consequent benefit to the whole organism. Very young children or feeble children do not bear well the cold plunge. The warm bath begun at 100°, gradually reduced to 80° with cold sponging of the head will almost invariably reduce temperature—that is to 101° or 102° which is better than a sudden reduction to normal or subnormal. The more or less constant application of the ice cap or cold cloths to the head assists to keep down the temperature as well as to allay nervous symptoms. A most valuable hydriatic application for controlling hyperpyrexia in children in this and other diseases is colonic flushing with cold water.

Of all measures in the treatment of severe cases of bronchitis and bronchopneumonia the hot bath is the most valuable. It lowers the temperature—usually keeping it in safe limits, it

quiets the nervous symptoms, it brings the blood to the surface thus diminishing the pressure in the overburdened right heart, and lessening the pulmonary congestion better than any counter-irritant. In the writer's practice he uses it systematically every three to six hours, according to the degree of pulmonary embarrassment as indicated by the dyspnea and cyanosis, or by nervous symptoms. The temperature of the water should be 105°, the time of submersion ten to twenty minutes. During the bath the head should be bathed with cold water, and gentle friction of the surface made. If the breathing be very shallow, a cold douche down the spine or flicking a little cold water from time to time on the chest will induce deep respirations. After the hot bath the pulse will be found fuller and stronger, the respirations slower and deeper, and the child often falls into a refreshing sleep.

From the first, careful feeding is of great importance, since the course of the illness is apt to be protracted. In many cases, especially in infants, this is the most trying part of the treatment, vomiting and diarrhea being frequent accompaniments and the digestive powers greatly enfeebled. On this account great care should be exercised in the administration of medicines not still further to derange digestion and interfere with nutrition. For the control of cough, inhalations are often more efficient than medicines. Simple steam is soothing and assists in loosening the expectoration. Creosote, turpentin, benzoin, etc., may be added. Only where a harsh, dry cough is exhausting the strength, should opiates be given, and then in small doses, only sufficient to relieve the severity of the cough. Syrup of ipecac in doses short of nauseating is the author's favorite expectorant during the dry stage, and later, the solution of anisate of ammonia.

In cases which become subacute or chronic the creosote preparations are of great value. The writer has usually used carbonate of guaiacol which does not readily disarrange the stomach. Where dyspnea and cyanosis are severe oxygen is of great service. In several cases in quite young children in the writer's experience, it has apparently been the means of saving life.

Strychnia is often invaluable as a heart stimulant. For heart failure it is often given with success in large dosage, but it should be remembered that its action is that of a powerful *stimulant* to the nerve centres, and that stimulation too long continued results in paralysis. Large doses therefore should be reserved for the emergencies and should not be too long continued.

PNEUMONIA IN CHILDREN.*

BY J. P. BARBER, M.D.,

Minneapolis, Minn.

The writers of text-books on the subject of pneumonia derive their experience chiefly from hospitals and asylums and from consulting practice, and, therefore, fail to see the disease in its milder forms. This fact is seen in their statistics. Holt,¹ who gives the most elaborate statistics of any American author on this subject, has a mortality of 65.5 per cent. of all cases, and 49.5 per cent. of uncomplicated cases of bronchopneumonia. Pepper² says the mortality of bronchopneumonia in children under five years of age is 30 to 50 per cent. Morrill³ gives it as 75 per cent. in children between two and three years. All agree that the mortality of lobar pneumonia in children is very light, about 4 per cent.

Every general practitioner in this city knows that bronchopneumonia has no such mortality here as the figures I have just read. Holt⁴ recognizes the fact that the mortality is less in general practice and gives it as from 10 to 30 per cent. but he gives no statistics.

I have records of 165 cases of pneumonia in children under five years of age, seen by me in private practice. Of these 17 cases were diagnosed lobar and 148 cases bronchopneumonia. Of the 17 cases of lobar pneumonia, one died. Of the 148 cases of bronchopneumonia, 12 died, 8.1 per cent. There were 131 cases uncomplicated, except by simple bronchitis, with 5 deaths, 3.7 per cent. There were 17 complicated cases with 7 deaths, 41 per cent. Ten of these had whooping-cough, with 5 deaths; 5 had measles, with 1 death; 2 had typhoid fever, with 1 death.

The duration of bronchopneumonia, as seen in private practice, is shorter than the text-books would lead one to believe. In 50 cases of recovery tabulated by Holt, only 17 recovered before the tenth day, and 25 between the tenth and twenty-first day.

* Read before the Minnesota State Medical Society, June 18, 1902.

DURATION OF BRONCHOPNEUMONIA.

Days.....	4	5	6	7	8	9	10	11	12	13	14	15	18	21	28	42	120	Total.
Under one year.....	2	5	12	3	4	1	3	1	2	1	3	4	2	2	2	...	47	
One to two years.....	2	10	10	7	6	1	5	2	...	...	1	...	3	...	1	...	48
Two to three years.....	2	9	3	7	2	...	2	...	2	...	1	...	1	...	1	...	30	
Three to four years.....	...	6	4	2	2	...	1	...	...	...	...	...	...	...	...	...	15
Four to five years.....	...	2	2	2	...	1	...	...	...	...	...	...	1	...	...	...	8
Total.....	4	29	24	30	13	6	8	5	4	2	1	5	4	7	2	3	1	148

The accompanying table shows the duration of the disease and age of patient in the 148 cases seen by me. It will be seen that 114 cases, 77 per cent. ended before the tenth day. Of these only 3 died.

It is possible that a few cases of lobar pneumonia have been diagnosed bronchopneumonia and *vice versa*. There is at times the greatest difficulty in positively distinguishing between the two diseases.

I have seen a number of cases in which the crisis took place between the first and fourth days, before a positive diagnosis could be made, which were strongly suspected of being bronchopneumonia. None of these have been included in the figures given above.

Climate is believed to be one of the factors which contributes largely to the low death rate and short duration of pneumonia in this city. There is no doubt that the disease runs a more favorable course in our somewhat elevated location and dry atmosphere than it does in the seaboard cities. Another factor, which has already been referred to, is that the general practitioner in private practice sees the disease in its milder as well as its graver forms, and the majority of the cases, at least of those in this city, are mild.

The statistics of this disease, as of many others, should be written by the general practitioner.

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2. American Text-book of Diseases of Children, p. 909.
3. Cyclopedia of Diseases of Children. Supplement, p. 440.
4. Holt, ARCHIVES OF PEDIATRICS, Vol. VIII., pp. 896-897.

Clinical Memorandum.

A CASE OF CONGENITAL RACHITIS.

BY MAURICE OSTHEIMER, A.B., M.D.,

Instructor in Children's Diseases, University of Pennsylvania; Physician to the
Children's Dispensary, University Hospital; Dispensary Physician
to St. Christopher's Hospital for Children, Philadelphia.

On September 10, 1901, Margaret S., aged seven months, was brought to the Children's Dispensary of the University Hospital. Both parents were living, and denied the occurrence of syphilis, tuberculosis, or rachitis, in either family. They were both young and healthy, this being the only child. As is noted in most of these cases reported in America, the parents were Scotch born, having come to America but a few years before the birth of this infant. Labor was normal, at term, but the child was very small. She was breast-fed, as often as once an hour. When almost three months old, the mother says that she first noted how curved the long bones were. As the child seemed in pain when moved, even a slight jar making her cry out, her mother had kept her lying on her back upon a pillow. At four months she rolled off the pillow and broke the femur, humerus, and both bones of the forearm on the left side, falling not over two inches. She had begun to show signs of indigestion by this time, vomiting, loss of weight, and constipation. The mother noticed constant sweating, and that she cried whenever touched.

At seven months, when I first saw her, her head was large and square, anteriorly and laterally, but quite flat posteriorly, the eyes being deeply set. Her face appeared well nourished, but the body and limbs were exceedingly thin. The anterior fontanel was widely open, diamond-shaped, about two inches each way. The thorax was somewhat depressed laterally with a well marked rosary, prominent abdomen, and slight lordosis. There were no cardiac murmurs, no enlargement of the liver or spleen. The humeri were greatly bowed above and anteriorly; in the fore-

arms this was less marked, while all epiphyses were enlarged. The femora were so curved outward and forward that they almost formed semicircles, and the bones of the legs showed angular deformities above the malleoli, as though a fractured lower fragment were displaced anteriorly, while the heel receded. Her mother imagined that this had resulted from the child's habitual position, as she always lay with the feet crossed. Sensation was normal, as were the reflexes. She moved the fingers and toes well, but never moved her legs, and only moved her arms slightly. The callus about the former fractures had wholly disappeared.

After consulting Dr. J. P. Crozer Griffith, who presented the baby in his clinic in September, I decided to stop the breast milk, since the child had not improved for 2 months. I began upon a formula of fat, 3 per cent.; sugar, 6 per cent.; and proteids, 1 per cent.; with pure cod-liver oil in gradually increasing doses. Beginning upon 4 ounces every 3 hours, the milk was gradually increased to 5 ounces by October 30th, when the formula was changed to one containing fat 3.5 per cent.; sugar, 6 per cent.; and proteids, 1 per cent. Vomiting ceased and she weighed 9 pounds. November 26th, when she weighed 9.5 pounds, 6 ounces of a formula containing fat, 3.5 per cent.; sugar, 6 per cent.; and proteids, 1.25 per cent., were given. As she was almost 10 months old November 30th, and was doing exceedingly well, her milk was again increased, to fat, 4 per cent.; sugar, 6 per cent.; and proteids, 1.5 per cent. Two teeth came through early in December. She was again constipated December 10th, but this was overcome with glycerine suppositories. Then she began to take her food badly, though she did not vomit. December 24th, when I last saw her, her weight had fallen to 9 pounds, but she showed no abnormal physical signs. I then made arrangements to go to her home, at some distance from the hospital, to photograph and measure the child. On January 5, 1902, I received word of her sudden death from a severe convulsion, a few days before completing her eleventh month. An autopsy was not permitted. The physician who saw the child at the time of death signed the death certificate "bronchopneumonia."

In spite of the absence of post mortem confirmation, I believe this case to have been one of those instances, rare in this country,

of fetal or congenital rachitis, called achondroplasia by Parrot and chondrodystrophia fetalis by Kaufmann. As a full résumé of the literature of the subject has recently been collected by Dr. J. Lovett Morse, in his paper read at the meeting of the American Pediatric Society, in Boston, last May, (*ARCHIVES OF PEDIATRICS*, August, 1902), I have written up the meagre details of this history to add to his list of cases.

225 SOUTH TWENTIETH STREET.

The Pharyngeal Cough of Children.—Loisel believes (*Le Bulletin Médical*, June 7, 1902) that a frequent symptom of many diseases of the pharynx, and of the nasal fossæ is the pharyngeal cough. It is often not understood by the physician—to the great detriment of the patient. In the case of hypertrophied tonsils, whether of the soft or hard variety, there is often a cough which is constant and painful. It is often nocturnal. It is apt to be periodical. The cough of the patient with adenoids is, like that found in hypertrophy of the tonsils, often connected with nasopharyngeal catarrh. This cough may have various characteristics. Chronic granular pharyngitis is also accompanied by cough. In the case of children with flat chests, if nothing is found by auscultation, the pharynx ought to be carefully examined.—*Medical Record*.

Goat's Milk.—Barbellion (*Bull. de l'Acad. de Med., Paris*, March, 1902) has for years been an ardent advocate of the introduction of goat's milk for infant and invalid diet. He describes tests which show that the coagulum is soft and very soluble, like that of human and asses' milk, while the coagulum from cow's milk is much more compact and difficult to digest. Comparative tests with gasterin showed that while cow's milk was scarcely affected by it during twenty hours, human, goat and asses' milk was completely digested. He reports a number of cases showing the remarkable manner in which infants thrive on goat's milk. The Académie voted in favor of his conclusions as to the advisability of establishing numerous goat milk depots throughout the city. One of the principal advantages of the goat for this purpose is that it is refractory to tuberculosis.—*Journal of the American Medical Association*.

ARCHIVES OF PEDIATRICS.

NOVEMBER, 1902.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

TYPHOID FEVER IN CHILDREN.

There is every reason to think that typhoid fever is not naturally, or necessarily, rarer among children than among older classes of the population. The fact that the disease is not often seen in infants and very young children is due rather to the absence of opportunities for infection than to any special immunity. Dr. Blackader, of Montreal, in his analysis of 100 cases of enteric fever in childhood before the American Pediatric Society two years ago, reported one case of the disease in a child under one year, three under the age of two years

and three under the age of three years. Altogether there were 17 cases under the age of five years. Griffith gave similar figures in his paper of this year.

In the discussion on Dr. Blackader's paper Dr. Griffith said that in his experience typhoid fever is not infrequent under the age of two years and that it is not rare even under one year of age, though it is difficult to recognize. He added that the position assumed by some pediatricians that continued fever in children must not be suspected of being typhoid fever unless it gives some clinically characteristic signs of that disease, while it is the custom to suspect all cases of continued fever in adults of being typhoid fever unless it can be proved to be something else, is not only anomalous, and likely to lead to error, but it is altogether illogical. Dr. Rotch agreed with Dr. Griffith and considered that while infants may not be so susceptible as older children and adults, the difference in susceptibility is by no means sufficient to permit this being used as an element in diagnosis.

Professor Potain, of Paris, used to say that the diagnosis of typhoid fever in the adult was one of the most difficult of diagnostic problems and in the child it constituted a veritable puzzle. There is no doubt that typhoid fever, especially in children under five years of age runs, not infrequently, a very anomalous clinical course, as is observed in what is regarded as a bronchial form of typhoid. The Widal test has done much to facilitate the recognition of typhoid fever in children and render diagnosis more assured, but even this has not proved as absolute as was at first anticipated. There is even in the adult a margin of at least 10 per cent. of cases in which the Widal test is not definitely determinative. About 5 per cent. of patients suffering from other febrile disorders give a positive Widal reaction, while at least 5 per cent. fail to show evidence of the agglutinative property in the blood, notwithstanding that genuine typhoid fever is present.

In children the margin of possible error with the Widal

test seems to be even greater. Besides, the agglutinative reaction in them is prone to develop later in the disease than in adults. When we remember that such helpful symptoms as the presence of the characteristic spots, the occurrence of epistaxis, and the steplike temperature are often missed in children, we can readily understand that typhoid fever during early years may present an extremely difficult problem in diagnosis. According to Morse's statistics only a little over 60 per cent. of the cases show spots and these are apt to be fewer in number and more easily missed than in adults.

For a time it was considered that the diazo reaction in the urine which occurs more constantly in children, it is said, than in adults, would prove of valuable assistance in diagnosis. Later investigation with regard to this reaction shows, however, that the diazo test has probably very little pathognomonic significance in typhoid fever. It occurs in most infectious fevers and it may occasionally be entirely absent in genuine typhoid; that is, running a characteristically clinical course. The absence of a leukocytosis in this disease is a diagnostic sign of value that should be considered.

It seems clear then that the diagnosis of typhoid fever in children must depend on the complete symptomatic picture presented together with the history of the possibilities of the infection, the main dependence being on the Widal test and the leukocyte count.

For the treatment of typhoid fever in children, the Brand method in its original form is not always available. Children react too intensely to the full bath that is of such marked benefit to adults. As a rule, a sponging will replace the bath and prove effective in the reduction of the temperature. The temperature in children is more easily influenced by antipyretic measures and there is never any need to produce shock by the use of water that is unnecessarily cold at the beginning of the treatment. As nervous symptoms are prone to become marked in children in

consequence of the presence of febrile temperature, the ordinary tepid bath and drugs which are also soothing to the nervous system should be used.

It must be borne in mind that typhoid fever in children not only gives rise to nervous symptoms but may actually invade the nervous system itself. Wentworth (*Transactions of American Pediatric Society*, 1899) collected from the literature some 20 cases in which it seemed clear that the typhoid bacillus was the active agent in the production of meningitis. In his own case, though the Widal test was negative typhoid bacilli in pure culture were found in the cerebrospinal fluid. The clinical picture in the case was almost exactly that of tuberculous meningitis and it seems advisable that especially during the existence of an epidemic of typhoid fever an absolute differential diagnosis of a meningitis should not be made until a careful investigation of the microbic flora of the cerebrospinal fluid has been instituted.

The nursing of children ill with typhoid is of even more importance than that of adults. The little patients are liable to be irresponsible and may easily expose themselves to many dangers unless they are cared for with vigilance. Besides this, children are sure to be more uncleanly than adults and the urine as well as the feces fairly swarm with the bacilli. Children and infants are apt to be handled much more than adults so that if the nurse is not careful to exercise the most scrupulous cleanliness there is great danger for herself and others.

The prognosis of typhoid fever in children is not unfavorable.

There is no doubt that a corresponding state of affairs obtains for the disease as for yellow fever. The two affections run so mild a course in children that they have proved the source from which infectious material has been distributed among older members of the population.

DIPHTHERIA BACILLI IN THE HEALTHY.

The Massachusetts Association of Boards of Health has issued an important report, which is quoted in *American Medicine* for September 6th, the result of the investigation by a special committee appointed to determine the presence of diphtheria bacilli in the throats of well persons. The frequency of occurrence of diphtheria bacilli in well persons varied from 1 per cent. to 22 per cent. Most of the observations were limited as far as possible to persons who had not been recently exposed to diphtheria.

After an examination of the experimental and clinical evidence it was found that only a small percentage of the morphologically typical diphtheria found in well persons not recently exposed to the disease is virulent; but the number of infected individuals well enough to mingle freely with others is so great that, even if only a small proportion of them is likely to transmit the disease, they constitute an important factor in the spread of diphtheria.

The occupation of the person as influencing the danger of the spread of the disease is greatest in those who handle food (as milk) and in those who are in contact with children. A child is more likely to spread the disease than an adult. Seventeen in five thousand to ten thousand of all persons have diphtheria bacilli which are dangerous to the public health.

The conclusions of the committee are as follows: First, with reference to well persons not recently exposed to diphtheria, that it is impracticable to isolate such persons. In consequence of the great number of such persons it would be futile to seek them out and isolate the whole number. Second, with reference to well persons in infected families, schools and institutions, it is not advisable as a matter of routine to isolate such persons. It is, however, advisable to keep the children in infected families away from day schools, Sunday-schools and all public places, and to keep them on their own premises. Wage-earners may usually be allowed to continue their work; but teachers, nurses and others who are brought into close contact with children

should not be allowed to continue their business. In schools and institutions it is usually advisable, if the infection is not too widespread, to separate from the others all infected persons, sick or well. When diphtheria appears in a community which has for some time been free from it, it is advisable to isolate all persons who have been brought in contact with the patient until it shall have been shown that they are free from diphtheria bacilli.

As to isolation of well persons infected with diphtheria bacilli, the committee, although believing it not practicable, recommends that an attempt should be made to educate the public to care for their persons and their secretions, so as to avoid the danger of infecting themselves or others. They also call attention to the importance of teaching cleanliness to school children, and of giving advice to families where diphtheria exists. In aiming at these conclusions the committee does not wish to be understood as minimizing the possible danger from diphtheria infection, but simply recommends what appears to be the most expedient course to pursue after considering the various conflicting interests of the public and the infected individual. The responsibility is largely shifted to the latter, and in the case of intelligent persons the individual responsibility in disseminating disease should be clearly placed before the infected person.

A Case of Acquired Deaf-Mutism.—Mayo Collier reports (*Medical Press and Circular*) the case of a girl of nine years, who at the age of three years began to lose her hearing and her power of speech. The trouble gradually increased until, when seen by the author, she was absolutely a deaf-mute. Examination of the ears showed within each, in contact with the membrane, a hard inspissated mass of cerumen of old standing. This was removed with some difficulty. The membranes were found to be extremely retracted, somewhat opaque, but otherwise healthy. Politzer's bag was used, and a wash ordered for the nose. The child improved rapidly in hearing and speech, and at the last interview repeated after the mother, whose lips were covered up, several verses more or less correctly and quite intelligibly.—*Medical Record.*

Bibliography.

Pediatrics, the Hygienic and Medical Treatment of Children. By Thomas Morgan Rotch, M.D., Professor of the Diseases of Children, Harvard University. Third edition, rearranged and rewritten. Illustrated by numerous engravings in the text and by colored plates. Pp. xxi.-1021. Philadelphia and London: J. B. Lippincott Company. 1901. Sold by subscription, price, \$6.00.

When Dr. Rotch brought out the early editions of his book there was a feeling generally expressed that the volume was overweighted by the chapters on milk and laboratory feeding. In taking up the latest issue of Dr. Rotch's Pediatrics it must be kept in mind that the author was one of the pathfinders in the wilds of infant feeding and his advocacy of scientific methods led to the foundation of milk laboratories. His interest in this subject has never lessened, so a large part of the book is a personal exposition on milk and allied topics.

Dr. Rotch upholds the importance of mathematical accuracy in the preparation of cow's milk for substitute feeding. He is a consistent believer in fine percentages in the preparation of laboratory milk and he gives preference to laboratory methods over home modification. He has never been able to satisfy himself that the emulsion of fat is in any way disturbed by the separator and in his clinical experience he does not know of any harm from its use. On the much discussed use of cereals as diluents in infant feeding Dr. Rotch writes: "I believe that starch should not form a part of the infant's food in the early months of its life." Tables and formulae of milk analyses and of milk modifications form a large part of the 130 pages devoted to infant feeding.

The anatomy and physiology of early life and the diseases of the blood have received careful attention.

The author has revised and extended many chapters so that the work is of a more even character than the first editions but it cannot be said that the brief descriptions of diseases, such for instance as some of those of the nervous system, nor the relative importance given to the histories of cases make the volume so uniform as the author's position in pediatrics would lead the reader to expect. Taken as a whole, however, Dr. Rotch's book is far in advance of former editions and is an important contribution to contemporaneous pediatric literature.

The letter press is clear and the numerous illustrations, with few exceptions, are excellent. The index is complete with numerous headings.

The Practical Medicine Series of Year Books. Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly. Under the general editorial charge of **Gustavus P. Head, M.D.** Vol. VIII. **Pediatrics and Orthopedic Surgery.** Edited by **W. S. Christopher, M.D., John Ridlon, A.M., M.D., Samuel J. Walker, A.B., M.D.** July, 1902. Chicago: The Year Book Publishers. Pp. 231. Price per volume, \$1.25. Price of the Series, \$7.50.

Dr. Christopher introduces his subject as the constructive branch of internal medicine. The factor which profoundly affects the child but is entirely eliminated in the adult is development. He gives a classification based on this physiologic view. The writings of Smedley and Christopher are used as extensively as space permits to show the influence of growth, mental activity and fatigue on the physical condition of the child.

The abstracts from current literature are well made and the editor gives them place according to his own classification.

There are a few errors in the names of authors: We-scott appears as Wescott, Cautley as Cantley and J. E. Winters figures both as J. H. and J. C. Winters.

The publishers present the book with better paper and press work than they gave in the first volumes of the series.

The volume is convenient for reference and can be carried in a coat pocket.

Progressive Medicine, Vol. III., September, 1902. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by **Hobart Amory Hare, M.D.** Pp. 421. Illustrated. Philadelphia and New York: Lea Brothers & Co. Price, \$2.50. Per annum, in four volumes, \$10.00.

There are so many medical journals that it is only by abstracts that any knowledge can be had of the literature of a particular subject. *Progressive Medicine* gives in a succinct way what every practitioner wants to know. In this volume there are paragraphs of interest to the pediatrician scattered through the book, viz.: the care of the newborn infant and injuries at birth.

Society Reports.

SEVENTIETH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.—SECTION ON DISEASES OF CHILDREN.

Manchester, July 29, 30, 31 and August 1, 1902.

HENRY ASHBY, M.D., F. R. C. P., (Lond.) PRESIDENT.

THE PRESIDENT, after a few words of welcome to the various guests, introduced the subject for discussion by expressing the opinion that we can hardly exaggerate the importance of the question of how best to adapt cow's milk to the wants and requirements of the infant. Whatever form of modification we may prefer, he said, we shall all be agreed in the belief that the freshness and purity of the milk are absolutely essential conditions, yet how often are they fulfilled? He then referred to the ignorance or indifference of a very large section of the public as regards the purity of the supply of milk to their households, and expressed the hope that directly or indirectly the paper and discussion might help in educating public opinion.

PROF. T. M. ROTCH (Boston) then read his paper on

THE MODIFICATION OF MILK IN THE FEEDING OF INFANTS.

At the outset he particularly emphasized that treatment should not be simply empirical but exact. Only by this means could we obtain a sure foundation and should we be able to compare the deductions of different observers.

This plea for exactness of method and knowledge of what is being administered to each infant may be said to form the basis of his paper, and the numerous formulae, tables, and detailed directions with which it was supplied were for the furtherance of the same object. Far from claiming finality for their work, Prof. Rotch said the supporters of the laboratory methods are merely asking their professional brethren to aid them in perfecting the

system. The purpose of a milk laboratory is to ensure a clean, constant and reliable milk supply, and to provide a place where whole milk, creams of guaranteed composition, and different combinations of milk may be put up according to the physician's prescription with accuracy, and under such conditions of cleanliness and asepsis as to insure the best possible food for infant feeding.

Seeing that opinions regarding the best food for infants during the early periods of life have been very diverse, we naturally turn to that supplied by Nature, as this shows the lowest mortality all over the world. We are thus led to study human breast milk in order to take what is good from it in making a substitute food. From a series of analyses made by Dr. Chas. Harrington, of Harvard University, it was evident from the diversity of the percentages of the chief elements that it varies in health, and that Nature does not offer certain definite percentages of fat, sugar and proteids for all infants. According to the author of the paper the percentages of the elements are adapted to the individual digestion, and this very diversity of the normal product necessitates that in preparing a substitute food we should be able to give the greatest variety to its elements. He then boldly stigmatized the present methods of the average physician in England, and until recently in America, which leave so great a role to be played by nurses and by the capitalists in infants' foods. He thought that the use of patent foods should be done away with entirely, and that the physician should be compelled to take the trouble to prescribe in exact percentages the different elements of the food to be given.

Concerning the particular elements, though he carefully guarded himself against giving the impression that under no circumstances is the giving of starch in the early months approved in America, and though he thought that its use as a diluent to break up the coagulum in milk was needed at a time when much less was known about infant feeding than at present, yet in the light of recent investigations it would seem that its addition is quite unnecessary, as this object can be accomplished without taxing the amylolytic function, or running the risk of weakening it. If, however, it be given then, he pleaded that, as with the other elements the percentage used should be known.

If starch be spoken of as a foreign element in milk, the same term may be used for cane-sugar, since it does not occur in the milk of any mammal. Its use on the theory that it is not liable to set up excessive lactic acid fermentation, apparently ignores the facts that though it easily undergoes alcoholic fermentation (a change not directly occurring with milk sugar), and though lactic acid is less readily produced from it than from milk sugar, yet it takes on a butyric acid fermentation more readily than the latter. On the other hand, milk sugar apparently aids the action of the organisms present in normal digestion, and destruction of more noxious forms of bacteria, whilst its conversion into lactic acid may aid in the digestion of proteids. Similarly an examination of human milk and cow's milk shows that the former has a higher degree of alkalinity, so that lime water, etc., must be added in definite proportion, or the animal's food so altered as to produce the proper reaction.

Keeping all the requirements in mind, there can be no doubt of the correctness of the conclusion that as the basis for the substitute food the milk of some animal must be used, and that taking all the factors into consideration, this animal for the average infant must be the cow.

Prof. Rotch acknowledges that instances have arisen where an infant in the early months of life can at once digest the milk of an animal unmodified, but states that this is the exception, not the rule, and a very great exception where sick infants are to be dealt with. Modification, therefore, becomes a necessity in his opinion, and when once begun is as easy to carry out with one milk as with another. The selection, therefore, of the particular animal will depend upon the part of the world, and similarly when cows are used this consideration will usually determine the particular kind. He then gave an account of the differences in the milk of various breeds, and mentioned reasons why certain breeds should be selected, where a choice is allowable. Milk, however, varies from cows of the same breed, and even from the same cow being liable to influences similar to those which affect a suckling woman. On these accounts, then, he recommends that a careful analysis should be made, and the percentages of the elements determined for the special herd used, in order to obtain a basis of calculation when modifying the milk in accord-

ance with the prescriptions of the physician. But having obtained a good primal milk, it becomes necessary to study the gastric capacity of infants, since a perfectly good food may cause a high degree of indigestion if the total amount of each feeding is in excess of this. He is of opinion that when fed from the bottle the facility with which the infant gets its food usually allows it to take more than its stomach will naturally hold, while the work necessary to get the food from the breast by causing fatigue at the proper time lessens the danger of overfeeding. The chief facts regarding the gastric capacity to be borne in mind are that the rapidity of growth is very great in the first quarter of the first year, that it is very slight in the second quarter, and that it again shows a moderate activity in the last quarter. The clinical deductions from this are that the quantity of food should be rapidly increased in the early months of life, that the quality rather than the quantity should be increased during the middle of the year, whilst during the last quarter the quantity should be increased, and the quality changed by reducing the sugar and increasing the proteids, the caseinogen proportionally more than the whey proteids.

The difficulties connected with the use of milk were then considered. These may be said to result from its contamination with micro organisms and their products. Heat being largely used for their destruction its action on milk was considered in some detail, a temperature of 155° F. (68° C.) being recommended for pasteurization, as this is sufficiently high to kill practically all pathogenic germs found in milk without coagulating the lactalbumin or producing any change which can be detected by appearance or taste. He was quite opposed to the view that continued feeding on cooked milk may be a possible cause of infantile scorbatus, though he believed that this might be produced by feeding with boiled stale milk of a faulty modification. He then proceeded to give an account of the transitional stages of thought and opinion which led to the controlling of the milk supply and the formation of milk laboratories, expressing the opinion that, as laboratory methods become more general, uncooked milk will be used for infant feeding, since excluding cases of tuberculosis and sepsis, practically all the bacteria come from without, and by throwing away the first portion of milk with-

drawn from the teat, a cow's milk can be obtained which is practically sterile.

The management of the farm where the special herds for infant feeding are kept was next reviewed in considerable detail, including the grooming and care of the cows, as well as the hygienic requirements of the cow house, with the milkers and their appliances, and of the milk room where the separation of the milk is effected, and subsequently the milk laboratories with the hygienic requirements of the contained modifying room were dealt with. Concerning the synthetic principle upon which the final product may be said to be based, special reference was made to the contention that the emulsion is disturbed by the process. Prof. Rotch finds that whey mixtures, plain milk mixtures, gravity cream mixtures, and centrifugal cream mixtures have essentially the same emulsion, and he has failed to observe any harm arising from whatever differences may exist.

The consideration of the proteids was delayed until whey and whey-cream modifications were studied, and the value of the former was shown not only in allowing of the administration of a proteid containing suitable percentages of whey-proteid and caseinogen (the so called split proteid), but in the yielding of a mixture with a much finer and more digestible coagulum than plain, modified mixtures with the same proteids. Blank forms showing the headings under which the food is prescribed by the physician were exhibited, and some hints on procedure were given before finally turning to a consideration of home modification. Tables were given showing how this method could be utilized under circumstances where milk cannot be obtained from a milk laboratory. Prof. Rotch insisted, however, on the increased dangers and difficulties of the home method, and gave instances how errors might readily arise, as well as indications of its greater limitations.

In conclusion, Prof. Rotch summarized the experience of those who have used the "American method" of modifying milk in the treatment of the gastro-enteric and diarrheal diseases of infancy, as well as in the prevention of summer diarrhea, and detailed the method of management of cholera infantum pursued by many of his *confrères*. After a preliminary laxative, followed by starvation for twenty-four to thirty-six hours, modi-

fied milk of low percentage, with an alkalinity of 10 to 15 per cent., and heated to 155° F., is given, and in Prof. Rotch's experience its use is most successful.

THE PRESIDENT, in thanking Prof. Rotch for his excellent and interesting paper, drew attention to the difference between home whey and laboratory whey, the former containing 2 per cent. of fat.

M. JULES COMBY (Paris) held these modified artificial milks responsible for causing anemia, rickets, and infantile scurvy. He noted that this last disease in particular was common in the United States, and appeared to occur in other countries with a frequency directly proportionate to the trade in artificial milks and infants' foods.

PROF. BAGINSKY (Berlin), though he did not share all Dr. Rotch's ideas concerning the modification of milk, yet as regarded the establishment and control of cow sheds, and the carrying out of strict measures for the obtaining of pure milk, he had some years ago furnished the Minister of Agriculture, in Berlin, with details of a very similar scheme. He did not agree with the systematic modification of milk carried out by Dr. Rotch, because he thought too little was known about the real needs of children, and so it was impossible to really adapt the milk for their use. In Germany they had found that Barlow's disease was produced by the employment of modified milks.

DR. H. DE ROTHSCHILD (Paris) thought that complicated milk mixtures, or milk modifications, were very seldom necessary. The addition of a little lime or vichy water was generally the only modification necessary. He was, however, extremely interested in the methods adopted to ensure a pure milk, and considered that the question of the milk supply was really a medical, and not primarily an agricultural one.

PROF. WM. P. NORTHRUP (New York) said it was desirable in such a question to have as many fixed factors as possible, the milk laboratory meant to him first of all healthy cows and reliable good milk with a limited number of bacteria, which moreover had not been allowed to do their work and leave the toxins for the child. By the use of modified milk in the treatment of marasmic babies he had saved some terribly bad cases, and he regarded the Walker-Gordon milk laboratories as one of the

greatest elements of assistance that had come into his work. He ranked antitoxin, intubation, and the modification of milk as an equal benefit to mankind.

DR. GEORGE CARPENTER (London), in contrast with the description of the excellent hygienic arrangement of the farms described by Dr. Rotch, gave details of the unsanitary conditions prevailing at a farm in his own experience, to which an epidemic of diphtheria had been traced. The difficulty of obtaining a proper milk supply seemed to him to be in the expense. He further mentioned some delinquencies which he had met with in the management of the Walker-Gordon milk laboratories in England, and recommended a wet nurse as a means of saving the child in cases not suitable for Dr. Rotch's system of feeding.

DR. G. ERIC PRITCHARD (London), though agreeing with the general principles of accurate percentage feeding, did not think that the laboratory method was the most practical, both from the question of expense and from the delay in receiving the milk. The only difficulty with regard to the home modification of milk on accurate lines was to obtain cream of a constant percentage of fat, and this difficulty had been removed by certain of the London dairies.

DR. JOHN THOMSON (Edinburgh) said they had not got a Walker-Gordon laboratory in Edinburgh. Possibly because the climate was cooler digestive disorders might be less frequent there than in other places. The question certainly needed raising in Scotland, where the conditions obtaining with reference to the milk supply were often very bad indeed.

DR. F. M. SANDWITH (Cairo) thought it was not too much to say that Prof. Rotch had done for the milk supply for children what Lister had done for surgery. The Walker-Gordon method had answered very well in Cairo, though there was no milk laboratory there, and he suggested that the alphabet of the method should at once be adopted in England.

PROF. J. W. BYERS (Belfast) thought no statement could be truer than that made by Prof. Rotch, that he had not reached finality on the question of infant feeding. There were three elements to be maintained in infant feeding: (*a*) Simplicity; (*b*) copying Nature's method, and (*c*) adaptability to the varying demands of the infant's organism in health and disease.

Prof. Byers thought that the method described by Prof. Rotch was the best plan yet suggested to fulfill these three conditions. He was sure that sufficiently generous benefactors could be found to provide the funds, and it was their duty as a profession and as guardians of the public health to form and mould public opinion on this question. From the diminishing birth-rate in England and the increasing objection amongst mothers to nurse their infants, it was of the utmost value that the children who were born should be properly nourished.

PROF. ROTCH in reply stated that they had not found in America that modified milk produced the diseases to which M. Comby had referred. Any modification was useless if the milk itself was bad. Contrary to M. de Rothschild's statement, that modified milk is unnecessary, he had found it of the greatest service in treating such diseases as cholera infantum and gastro-enteritis. Defective management is remediable, and he was sure that expense never stood in the way of a good thing. He agreed with the observation, that a child should not be fed too precisely, and that it should have sufficient variation in quantity and quality, but thought it advisable to know what variations it really had, and not work in the dark in the matter.

The Symptoms and Pathology of Pseudomeningitis.—R. Peters (*Roussky Arch. Patol., Klin. Med. i Bak.*, March, 1902) analyzes 17 cases of false meningitis in children. Of these, 7 were cases of typhoid fever accompanied by symptoms of meningitis, 3 of influenza, 2 of cholera morbus, 1 of lobar pneumonia, 1 of scarlatina, and 2 of mixed infection (influenzal and streptococcic infection, typhoid fever, and erysipelas). In 1 case the disease was followed by idiocy, in 1 it terminated fatally, and the remaining 15 patients recovered. From a study of the clinical and pathological features of pseudomeningitis, the author concludes that this condition is not a purely functional one, as has been asserted heretofore, by the majority of authors, but that it is an organic process, expressed principally by lesions in the walls of the vessels of the meninges, together with extensive exudations into the circumvascular and circumcellular spaces on the surface of the brain. The author classes the lesion in question as a serous encephalitis.—*The New York Medical Journal.*

THE NEW YORK ACADEMY OF MEDICINE.—SECTION
ON PEDIATRICS.

Stated Meeting, October 9, 1902.

ROWLAND G. FREEMAN, M.D., CHAIRMAN.

A CASE OF INFANTILE STRIDOR.

DR. CHARLES HERRMAN presented this case. The patient was an infant of three and a half months in whom the peculiar croaking sound on inspiration had been first noticed shortly after birth. There was no evidence of rickets, the general health was good and there was no cyanosis. Dr. Herrman said that, according to the literature, this affection was supposed to be dependent upon an exaggeration of the ordinary infantile type of larynx; certain it was that in the few cases in which an autopsy had been obtained by reason of death from some intercurrent disease, no enlargement of the thymus or of the mediastinal glands had been found. As to the prognosis, this peculiar form of inspiration usually disappeared of its own accord during the second year of life. In the child presented the croaking inspiration was most noticeable after suckling or crying.

DR. W. P. NORTHRUP referred to a recent case that he had seen in an infant of five months. In that case the peculiar croaking sound was most intense when the child was asleep, and so loud was it that it caused no little annoyance in the house. This child, too, was also free from rickets and healthy. He was of the opinion that the folds of mucous membrane, and especially the aryteno epiglottidean folds, became congested and were drawn over the larynx, and that on breaking away they caused the peculiar whistling inspiration.

SOME OBSERVATIONS IN THE CHILDREN'S HOSPITALS OF PARIS AND
LONDON.

DR. L. E. LA FÉTRA read this paper. He found both London and Paris better supplied with hospital accommodations for children than New York City, and in the London hospitals a larger

number of physicians on the staff to do the work. The out-patient work was well organized so that the maximum was accomplished with the minimum expenditure of time. The pulse, respiration and temperature of the waiting children were all taken and recorded, and the children stripped ready for examination before they reached the clinical clerk. In this way a vast deal of time was saved. The hospitals of Paris were on the pavilion plan, and were noteworthy for the abundance of air, light and ground around and between the pavilions. Another peculiar feature was the great care taken to provide students and visitors with gowns to be worn over the street costume while in the wards, whether these were for contagious or for other diseases. The out-door work is carefully supervised by the visiting staff of the hospital. It was said that scarlatinal nephritis was very rare in the Paris hospitals, and this was explained on the theory that the nephritis was due to infection with a special streptococcus, which was generally prevented from gaining an entrance by the great care exercised in cleansing the mouth and pharynx. Dr. La Fétra very properly remarked in this connection that it should not be forgotten that the prevailing type of scarlatina in Paris is very mild. He was impressed with the inferiority of the milk supply of Paris and with the fact that the principles and advantages of percentage feeding do not appear to be recognized. In the wards for contagious diseases complicated or malignant cases are isolated by means of portable partitions, made of wood near the floor and glazed higher up. In this way sufficient light is obtained and an opportunity afforded for the general supervision from the ward. A very popular procedure in Paris was the removal of the intubation tube by what is called thumb expression, and the procedure is done very adroitly.

DR. NORTHRUP remarked that the intubation tubes used in France bore very little resemblance to the original O'Dwyer tube, being short and having a large bulge, so that it was far easier to express the French than the American intubation tube.

A REVIEW OF SOME OF THE OLDER WRITINGS ON INFANT FEEDING.

DR. SAMUEL McC. HAMILL, of Philadelphia presented this interesting historic paper. He said that direct nursing from ani-

mals had never come much into vogue because of its inconvenience, to say nothing of its repellent features. The goat, the ass and the cow were the animals that had been chiefly used for this purpose, and the goat had been known to become quite fond of its nursling. The first definite directions concerning the modification of milk had been given as long ago as 1794 by Moss, who recommended feeding infants on one part of cow's milk diluted with two parts of water. Some of the older writers also recommended the use of gruels to break up the hard curd of cow's milk. Dewees in 1825 advocated the use of fresh milk from one cow, in the strength of two parts of the milk to one of water, and advised that the milk be heated to the boiling point and quickly cooled and that the mixture be prepared separately for each feeding. Up to 1853, when Meigs introduced his well known mixture of cream, milk, gelatin and arrowroot, most physicians followed the writings of Dewees. A point of great historic interest was that a Dr. Cumming, of Williamstown, Mass., published in 1859 a book on infant feeding in which he described a method for definite percentage feeding. He varied his dilutions according to the age and condition of health of the infant, and pointed out that in diluting cow's milk sufficiently to meet the demands of the infant's digestion, there resulted a great deficiency of fat which must be made good by the addition of cream. Before the origin of the nursing bottle infants were fed from a cow's horn perforated at the smaller end and capped with a nipple made from a piece of parchment or a heifer's teat, usually enclosing a piece of sponge to prevent too rapid a flow of milk. The first description of the rubber nipple noted was in Day's work on "The Diseases of Children" published in 1861. Glass nursing bottles were introduced as early as 1786.

THE RECENT MEETING OF THE PEDIATRIC SECTION OF THE BRITISH
MEDICAL ASSOCIATION.

DR. W. P. NORTHRUP gave an informal talk in which he described his impressions of this meeting.

Current Literature.

PATHOLOGY.

Schabad, J. A. : Diphtheria and the Diphtheria Bacillus in Scarlatina (a Contribution to the Subject of Scarlatina and Diphtheria Combined). (*Archiv. f. Kinderheilk.* Vol. xxxiv., 1902.)

The questions which the writer has endeavored to solve are as follows: Are the rods, resembling diphtheria bacilli, which are found in cases of scarlatina, true diphtheria bacilli or are they pseudo diphtheria bacilli?

Secondly, if the rods found in cases of scarlatina are true diphtheria bacilli, are they saprophytes under these conditions or are they pathogenic, so that cases of this kind may be considered to represent a double infection?

The conclusions of the author are:

1. A complication of scarlatina with diphtheria is observed not only in convalescents from scarlatina, but may occur at the beginning or during the height of the disease.

2. In order to diagnose scarlatina, complicated with diphtheria at the beginning of the disease, the clinical symptoms must coincide with the bacteriological findings; that is to say, the clinical symptoms of diphtheria must be present as well as the diphtheria bacillus.

3. Diphtheria bacilli, obtained from the throats of convalescents from scarlet fever, or during the height of the disease, are virulent for guinea pigs, whereas the organisms obtained early in the disease, although resembling diphtheria bacilli in every way, are only slightly or not at all virulent for guinea pigs.

4. Absence of virulence of the diphtheria bacillus, found early in scarlatina, does not prove that it is not concerned in the condition, or that scarlatina combined with diphtheria does not exist.

5. Besides the cases of scarlatina, combined with diphtheria, Klebs-Löffler bacilli are sometimes found at the beginning of

scarlatina, clinical symptoms of diphtheritic angina remaining absent.

These cases run a milder course and terminate more favorably than those in which scarlatina and diphtheria are combined, and this renders it probable that the diphtheria bacillus in these instances plays the rôle of a saprophyte.

6. In order to prevent the spread of diphtheria among those ill with scarlatina or convalescent, bacteriological examination of the throats of patients should be made before they are admitted to the wards of the section set apart for this disease.

7. All cases of scarlatina, combined with diphtheria, as well as those in which diphtheria occurs at the height of the disease or during convalescence, should be treated with diphtheria anti-toxin.

Tobeitz, Adolf: A Contribution to the Pathology and Therapy of Scarlatina. (*Archiv. f. Kinderheilk.* Vol. xxxiv., 1902.)

The work described in this article was undertaken with the idea of verifying the opinion expressed by Ervant, that the occurrence of peptonuria in scarlatina always either precedes or accompanies a complication, this symptom, therefore, possessing prognostic importance.

In reviewing the literature of the subject the writer found an allusion to the work of Pujador Y. Fauva, who warmly recommends the use of turpentine in scarlatina. The results reported by this writer were so excellent that Dr. Tobeitz determined to test the treatment.

The urine was examined regularly for albumin and peptone and at the same time tests for CO₂, chlorides and phosphoric acid were made.

Twenty-four hour specimens were used and peptone was tested for according to Devoto's method. Eighteen cases are tabulated.

The writer in conclusion states that his work only partly bears out Ervant's experience.

In mild cases of scarlatina, running a regular course, peptonuria occasionally occurs.

In scarlatina, with complications, peptonuria was found each time, and sometimes preceded the complication. The finding of a large quantity of peptone in the urine is not always an unfavorable sign and does not necessarily denote a complication, much less a "grave complication."

Peptonuria does not run a course coincident with the fever. Peptonuria occurs more frequently and from other causes than those mentioned by authors, among others, Jaksch, v. Noorden and Senator.

It seems probable that not all observers studying this subject were describing the same substance, albumose.

In order to dispose of all doubts as to his cases, Tobeitz repeats that the greater part of the urine examined was free from albumin and remained so, but showed the peptone reaction.

Beneficial effects were found to follow the use of oleum terebinthina rectificatum. The drug was given in milk, as subcutaneous injection caused the formation of abscesses.

The writer thinks that this remedy has a directly beneficial effect in cases where nephritis or albuminuria exists.

Durante, Durando: On the Bacteriology of Noma. (*La Pediatria.* Vol. x., No. 5.)

In a single case investigated in great detail, the staphylococcus pyogenes aureus, in association with the proteus vulgaris, was invariably found in the necrotic tissue. If we believe that the former germ is able to produce this disease, it is possible that the proteus may have modified its pathogenic attributes thereby greatly raising its virulence or necrotizing power. Or it could be assumed that the proteus may have so modified the soil that the staphylococcus, without itself having suffered modification, could produce the necrotic areas. In the first case the pathogenic process would be a symbiosis; in the second, a metabiosis.

Cima, Francesco: Researches into the Quantity of Uric Acid in the Urine of Children with Whooping-Cough. (*La Pediatria.* Vol. x., No. 5.)

The increase which occurs in the number of white corpuscles in the blood of patients suffering from pertussis, should argue the existence of a corresponding change in the amount of uric

acid eliminated by the urine. The author states that he is the first who has sought to verify this supposition for the disease in question, although many studies have been made of the relationship between leukocytosis and the production of uric acid. His results bear out the *à priori* presumption. The amount of uric acid was found to be augmented in pertussis, while a direct connection could be shown between the degree of leukocytosis and the amount of acid excreted.

MEDICINE.

Carr, J. Walter: **Contrasts Between Certain Common Diseases in Children and Adults.** (*The Edinburgh Medical Journal.* No. 568.)

The "certain common diseases" considered are acute rheumatism, pulmonary tuberculosis, heart diseases and digestive disturbances. In the child the joint lesions of acute rheumatism are neither severe nor extensive as a rule; sweating is absent; fever is relatively slight, and there are no symptoms referable to the tongue and urine. Indeed the condition may readily be overlooked. On the other hand, the child is specially prone to cardiac localization. After the age of ten the disease tends more and more to assume the adult type.

Pulmonary consumption in the child often starts in the base of the lung; dissemination of the disease through the lungs is rapid and irregular; cavities are not common and both the physical signs and clinical picture of the disease differ in the child. Thus the former are often hardly obtainable, while hemoptysis, expectoration, night sweats and tuberculous laryngitis are of very rare occurrence.

In regard to the heart we seldom see myocarditis in childhood, although certain toxemias produce acute dilatation. Mitral lesions occur as a rule in the child and run a peculiar course, causing anemia and wasting. Compensation prevents many of the conditions seen in the adult, and if the age of puberty is survived the patient may live to old age.

Under the head of digestive disorders of children the author cites the sharp attacks of acute dyspepsia—really gastritis—which terminate a period of abuses in diet, and represent a sort of

crisis. Functional dyspepsia in the child tends to produce wasting, because of the demands of growth. Cough and fever sometimes co-exist and the whole picture suggests phthisis. Owing to the activity of the nervous system, digestive disorders in the child may provoke a great variety of reflexes—night terrors, asthma, etc.

Fotheringham, J. T.: Cirrhosis of the Liver in the Young
(*The Canadian Practitioner and Review.* Vol. xxvii., No. 0.)

During 1901 he saw 2 cases of hepatic cirrhosis in children. The first patient, a girl six years old, had all the symptoms of chronic intestinal indigestion. The liver was large, hard and smooth. There was slight icterus, and little or no ascites. In all other respects the child appeared to be sound. Improvement in the condition of the liver followed a winter in Bermuda. The other patient was a girl, aged twelve, who was also well-grown and well-nourished. The first and almost the sole symptom present was ascites of extreme degree, with resulting interference with circulation and respiration. After two tappings laparotomy was performed and an omental anastomosis established, resulting in a cure of the ascites.

Variot: Congenital Cyanosis Without Abnormal Cardiac Sounds. (*Le Progrès Médical.* No. 27. July 5, 1902.)

At the June 17th meeting of the Pediatric Society, M. Variot reported a case of congenital cyanosis, without abnormal cardiac sounds, in an infant sixteen months old. Autopsy revealed a defective ventricular septum and stenosis of the pulmonary artery; the walls of both ventricles showed the same degree of thickness.

M. Marey, who was asked by M. Variot for an explanation of the absence of a murmur, expressed the opinion that this was due to an equal degree of tension in the two ventricles, which prevented the sudden rush of blood from one chamber into the other.

M. Marfan said that this explanation accounted for the absence of a murmur due to an incomplete ventricular septum, but did not explain why the stenosed pulmonary artery occasioned no abnormal sound; he referred to a case of cyanosis without murmur in a young girl in whom, at the age of seventeen years, the murmur of pulmonary stenosis developed.

Wherry, George: Buphthalmos, or Congenital Hydrophthalmos. (*The Lancet*, No 4126.)

Three cases are reported, the patients being respectively an infant, a girl of fourteen years and a boy aged seven and a half years. The condition was much the same in all the cases, the eyes being distended with thinning of the coats, and nebulous corneæ. The infant is improving under eserin. In the older children the sight has been greatly impaired or lost. Nothing is to be accomplished by iridectomy or sclerotomy. Atropin is contraindicated. The condition is practically a congenital glaucoma, the intraocular tension being sufficient to distend the eyes, so that the coats give way.

Vergely, P.: Diurnal Hallucinations in Children. (*Revue Mensuelle des Maladies de l'Enfance*. Tome xx., July, 1902.)

The writer says that nocturnal hallucinations, occurring especially in connection with digestive disturbances have given rise to numerous interesting observations; whereas the subject of diurnal hallucinations, which at times develop during convalescence from a variety of abdominal diseases, has received no attention.

In view of this fact he reports the cases of a delicate boy of seven and a healthy girl of six years, both of whom were subject to hallucinations during recovery from an attack of appendicitis without operation. In neither case was there a family history of insanity, hysteria or grave nervous disorder of any kind. The boy fancied that he saw people about his bed, and among them a negro making grimaces. The girl saw herself pursued by men. The tendency to hallucinations grew less as recovery advanced and finally ceased.

The writer states that he has not seen similar cases reported; he believes that they occur, but escape observation. The article represents merely a preliminary report.

Hand, A. Jr., and Walker, J. H.: An Analysis of Seventy-one Cases of Typhoid Fever Treated in the Children's Hospital of Philadelphia During 1901. (*American Journal of the Medical Sciences*. June, 1902.)

Seventy-one cases were analyzed by the writers. About 42,

or 59.1 per cent. were boys and 29, or 4.9 per cent. girls; no cases under two years occurred. Sixty-five of the children were white and six colored.

The shortest period during which fever continued was nine days, and the longest forty-four days, the temperature reaching normal on an average after twenty-four and one-third days. A positive Widal reaction was obtained in 56 out of 64 cases, no test being recorded in 7.

Enlargement of the spleen was present in 59 or 83 per cent. of the cases. Of the 65 white children 52, or 80 per cent. showed typical spots. Constipation was present in 30, or 42 per cent.; diarrhea in 27, or 38 per cent.; delirium was marked in 11 cases; intestinal hemorrhage occurred in 4 cases; epistaxis was noted in 3 cases. The diazo reaction was tried in 17 cases and was negative in one.

Eighteen per cent. of the patients had complications, in half of these otitis media was noted, being associated in one case, with alveolar abscess, in one with pneumonia and in one with alveolar abscess, and caries of the jaw bone; in one instance there was a perirectal abscess. Other complications were cervical adenitis, jaundice, pustules, furuncles, vaginitis, nephritis, noma, diphtheria and cystitis.

Relapses occurred six times. There were three deaths, a mortality of 4.2 per cent. The routine treatment consisted of rest in bed and liquid diet, additional treatment being symptomatic.

In conclusion the writers say that while typhoid fever may sometimes run a very mild or even abortive form in children, yet its clinical picture does not differ from that in adults in any essential feature save in the somewhat lower mortality.

Lartigau, A. J., and Nicoll, Matthias, Jr.: A Study of Hyperplasia of the Pharyngeal Lymphoid Tissue (Adenoids), with Especial Reference to Primary Tuberculosis of the Pharyngeal Tonsil. (*American Journal of the Medical Sciences*. June, 1902.)

The writers studied forty-six specimens of adenoid vegetations with very great care and base their remarks upon the result of this study. The bibliography is very fully given.

The conclusions drawn are as follows:

1.—Adenoids consist essentially of hyperplastic pharyngeal lymphoid tissue. The epithelium and fibrous tissue changes are inconstant and variable, and independent of the age of the patient. The new formed fibrous tissue is largely perivascular in distribution. It may occasionally be one of the factors in the process of disappearance of the adenoid.

2.—The hyperplastic pharyngeal tonsil often contains micro-organisms, and these are mainly pyococcal forms, the bacteria for the most part, lie near the surface, and the infection usually occurs from the surface, with or without demonstrable lesion of the epithelium.

3.—Primary tuberculosis of adenoids is probably more common than most previous studies show. Sixteen per cent. of our series contained tubercle bacilli, 10 per cent. with characteristic lesions of tuberculosis. The tubercle bacilli were present in small numbers.

4.—The lesions in primary tuberculosis of the adenoid are generally close to the epithelial surface of the fecal in character. Occasionally they may be found in the deeper parts of the pharyngeal lymphoid tissue.

5.—The pharyngeal tonsil may be a portal of entry for the tubercle bacillus and other microorganisms in localized or general infections.

Kolossowa : The Blood Pressure in Children Under Physiological and Pathological Conditions. (*Archives de Médecine des Enfants.* Vol. v., No. 7, July, 1902.)

The instrument used in making the observations here noted was the tonometer of Gärtner and was described by him at a meeting of the Medical Society in Vienna, in 1899.

The principle upon which the instrument is based is simple. After having emptied the blood vessels in the end of the finger by squeezing it, the second phalanx is compressed by means of a ring which communicates with a manometer, the degree of pressure is gradually diminished and soon the end of the finger becomes dark red, at the same time the manometer indicates the blood pressure in millimeters; mensuration is accomplished in a few seconds and the technic is very simple.

The work reported consists of two parts: (1) The blood

pressure of the child under physiological conditions and (2) the blood pressure under pathological conditions.

The cases reported under the first head are the result of studies made in a school in Lausanne and the observations noted under the second head were made in the Cantonal hospital. The normal cases are used as a control. The blood pressure of children suffering from diphtheria, measles and scarlet fever was tested; 115 cases of the first, 45 cases of the second and 7 cases of the last disease having been studied. In simple diphtheritic angina a slight diminution of blood pressure is noted; in diphtheritic angina with albuminuria, the blood pressure is increased in proportion to the amount of albumin found.

In fatal cases of diphtheritic toxemia the blood pressure diminishes progressively till death. In cases where the pressure is diminished to 15 mm. below normal, paralysis always develops.

Thus a diminution of pressure serves as a criterion of the degree of toxemia and in diphtheria, paralysis may be foretold.

The diminution of blood pressure may explain some cases of death from heart failure in which autopsy reveals no cardiac lesion. As the toxins produced by the Klebs-Löffler bacillus have been found to be strong vasodilators, a marked diminution of blood pressure forms an indication for the administration of drugs which are vasoconstrictors.

De Boinville, Vivian Chastel: A Peculiar Case of *Scarlatina Hemorrhagica*. (*The Lancet*. No. 4119.)

The patient was a boy in his fifth year and was first seen on the sixth day of the disease. The course of the latter was moderate and defervescence set in on the tenth day after admission. Complications had been absent throughout. Upon the day following defervescence, a hemorrhagic state suddenly supervened, coincident with the onset of desquamation. It was ushered in with epistaxis, and a purpuric rash soon followed. The escape of blood could not be checked by any of the measures applied and desquamation was arrested. Not much blood was lost, but the patient's general condition rapidly failed, as if from profound toxemia. The temperature ran up to 103.2° . After a paroxysm of vomiting, in which a little blood was ejected, the

patient died on collapse, five days after supervention of the hemorrhagic state.

Biss, Hubert E. J.: Purpura Fulminans Following Scarlet Fever. (*The Lancet.* No. 4148.)

The patient was a boy in his fourth year, and the fever ran a severe course for about a week, when defervescence suddenly set in. The faecal and nasal complications were so well developed that the original diagnosis had been diphtheria. During convalescence double otitis media occurred. The course of recovery was not smooth, as the temperature occasionally ran up. About three weeks after the onset of the scarlatina a hemorrhagic state suddenly developed. The skin was closely studded with a fine purpuric rash and the gums bled. Red blood was then passed in considerable quantities by the mouth and rectum, and death soon supervened.

The autopsy showed more or less hemorrhage of the serous and mucous surfaces. The kidneys were found to be the seat of acute fatty degeneration. Cases very similar—save for the renal complication—were reported by Henoch and Strom and Arctander. In the author's case the renal lesions could not be classed under scarlatina-kidney.

Sill, E. M.: Chlorosis in a Child Nine Years Old, Complicated with Estivo-Autumnal Malaria. (*Medical Record.* No. 1661.)

The prodromal symptoms consisted of pain in the abdomen, loss of appetite, constipation, irregular chills and fever, drowsiness and headache. Upon examination were noted marked pallor, dull expression, and enlarged, tender spleen. An investigation of the blood revealed the malarial parasite of the estivoautumnal variety, together with all the appearances which constitute chlorosis. The patient improved rapidly upon iron, quinin and arsenic. The author is inclined to believe that the association of malaria with chlorosis was purely accidental, although it is possible that the blood state was due wholly to the malarial infection.

Penkert, M.: On Idiopathic Congestion of the Liver. (*Virchow's Archiv.* Band clix., No. 3.)

A male child, twenty-two months old, was said to have been

born with an enlarged abdomen. It increased to such an extent as to cause dyspnea, and was punctured. Finally laparotomy was done and a piece of the enlarged liver excised. Death resulted. At the autopsy the liver was found to be much enlarged, weighing 850 grams. It was intensely congested, many of the blood vessels being dilated and the liver parenchyma pressed out of existence. The connective tissue was thickened around the portal vein branches. The heart was found to be normal, and the exquisite hepatic congestion, due to complete stenosis of the hepatic veins at their point of entrance into the vena cava inferior. Some smaller branches opened into the vena cava, but even these were partly obstructed by thrombi. The consequence of the constant over-distension of the liver vessels was pressure atrophy of marked degree and a beginning cirrhosis. The fact that the child had lived for nearly two years can only be explained by the fact that the collateral circulation had become established through small vessels in the right and left coronary ligament and through the patent umbilical vein and numerous new-formed smaller vessels in the ligamentum teres. A congenital malformation was the cause of the condition.

Méry, H.: The Intermittent Albuminurias of Childhood.
(*Arch. de Méd. des Enf.*. Vol. v., No. 9.)

Intermittent albuminuria may be dependent upon a chronic renal lesion or it may be functional in origin. In the latter case several varieties must be recognized: pregouty, cyclic, albuminuria, hepatogenous albuminuria, digestive albuminuria (most often caused by dilatation of the stomach), mechanical albuminuria and pretubercular albuminuria.

The course and prognosis of the functional varieties are more favorable than in those of renal origin, though the latter may be cured and leave no trace. Functional albuminuria occurs most frequently in later childhood and during adolescence, the male sex being affected more than the female. Heredity plays some part in the etiology, especially as regards the renal, gouty or nervous diathesis.

The treatment is dietary and hygienic, chiefly, with little medication. Alkalies in large doses are valuable in the pregouty variety.

Perrin and Goepfert: Two Cases of Cutaneous, Verrucose Tuberculosis. (*Arch. de Méd. des Enfants.* Vol. v., No. 9.)

Both children were without inherited tubercular taint. The elder, ten years old, presented a verrucose area as large as a one franc piece on the right heel, as the result of a wound made by her shoe, one year before. Curettage was done and the wound dressed with iodoform. In a few weeks the wound was doing well. The curettings were inoculated into a guinea pig, which developed tuberculosis of all the organs within two months as a result.

The younger child was three years old and developed a small, red papillomatous mass on the right wrist. This remained stationary for a year, had a reddish, indurated base and was not painful. It was treated with iodated collodion and receded rapidly. A small piece was excised and produced tuberculosis on inoculation into a guinea pig.

In neither case had the lymphatic system nor the general health become affected, the development of this attenuated tuberculosis having been a very slow one. The mode of infection could not be traced in the second case.

SURGERY.**Reiner, Max: Congenital Absence of the Femur.** (*Revue Mensuelle des Maladies de l'Enfance.* Tome xx., June, 1902.)

Reiner having made in *Zeitschrift f. orthop. chir.*, 1901, Bd. IX., a detailed study of several cases he distinguishes several anatomical forms of this condition:

I. A femur whose length and volume are diminished—coxa vara. II. Femur without continuity; the inferior portion, diaphysis and epiphysis and the head of the bone and the trochanters are present. III. Same condition with close attachment of the inferior portion of the femur to the tibia; the knee joint is lacking. IV. The shaft of the femur exists but there is no neck, the head is embryonic and is placed directly upon the shaft whose upper end is frequently curved. V. The diaphysis is very much shortened but the femoral epiphyses, the hip and the knee are normally developed.

Conant, W. H.: The Modern Operation for Radical Cure of Umbilical Hernia. (*Boston Medical and Surgical Journal.* Vol. cxlvii., No. 15.)

Umbilical hernia in children gets well as a rule with the use of a truss. Strangulated umbilical hernia should be operated on like any other hernia. The radical operation, when indicated, should be performed if the parents will give consent; otherwise a truss should be worn constantly, day and night. An irreducible hernia should be subjected to operation, save in the presence of contraindications such as renal or cardiac disease. In operating one should proceed as rapidly as possible to obviate the tendency to shock. When ether is contraindicated the operation should be done under cocaine.

Wilson, W. Reynolds: The Etiology and Diagnosis of Fractures in the Newborn. (*The Philadelphia Medical Journal.* No. 241.)

The fractures chiefly considered are those which occur *sub partu* from traumatism. The bones usually broken are the humerus, clavicle and femur. The bones of the head and face are exposed to particular types of injury from dystocia. The long bones may be broken in attempts at version, and in the course of breech extraction. Violence may be applied directly or indirectly.

In the diagnosis of fractures of the long bones it is necessary to exclude the possibility of diastases and luxations. Fracture of the humerus is far more common than luxation of the shoulder joint, which is in reality a congenital malformation. The femur is usually broken at the junction of the middle and upper thirds. Generally speaking, all these fractures are accompanied by swelling, disability, unnatural mobility, dimpling of overlying tissues and pain. Radiography is of great value in diagnosis.

Porter, Miles F.: Treatment of Tubercular Peritonitis (*Journal of the American Medical Association.* Vol. xxxix., No. 11.)

In examining a girl, aged fourteen, as preliminary to an operation for radical cure of inguinal hernia, there were noted a certain dullness and hardness of the lower abdomen. The sur-

geon cut down to the hernial sac, and finding that the latter appeared to contain a large quantity of fluid suspected an inguinal cystocele. Permanganate solution injected into the bladder could not be aspirated from the sac and it was thought advisable to lay open the peritoneal cavity by an incision between the pubes and umbilicus. It was now learned that the sac was walled off at its internal aspect by adhesions, and that the peritoneum of the sac was studded with tubercles. The fluid was evacuated and the sac excised. Both wounds were sutured with catgut. The patient made a good recovery under after treatment, consisting of inunctions of Crede's ointment, hypophosphites inwardly and hygienic regimen.

Porcher, W. Peyre: Mastoid Disease in Infants, Two Cases, etc. (*New York Medical Journal.* No. 1244.)

A baby eight months old was affected with a very large mastoid abscess threatening cranial perforation. Operation was delayed until the supervention of symptoms of probable intracranial origin, when a simple incision gave vent to much pus. The knife passed readily through the friable mastoid cells, and curettage was omitted for fear of entering the cranial cavity. The wound healed under simple irrigation and packing with iodoform gauze. The case was then unique, by reason of the extreme youth of the patient and the fact that with such extensive destruction, perforation did not occur. But at a later period the author had precisely the same experience with a still younger patient—a colored baby six months of age.

Cotton, F. J.: Empyema in Children. (*Boston Medical and Surgical Journal.* Vol. cxlvii., No. 3.)

Empyema in childhood usually follows lobar pneumonia and is due to the pneumococcus. Spontaneous cure is rare, even after tapping. Operation should never be delayed after diagnosis is made. The best form of intervention consists of subperiosteal resection of an inch of the eighth or ninth rib in the posterior axillary line; after evacuation of all pus, fibrin, etc., tube-drainage should be employed. Irrigation is not advisable. When failure of the lung to expand appears to prevent complete

recovery, some suction apparatus should be employed. The mortality is about one case in seven, and the causes are beyond control. The tendency under proper treatment is to eventual recovery, and any resulting deformity of the chest is temporary and amenable to treatment in most cases, although permanent scoliosis sometimes results.

HYGIENE AND THERAPEUTICS.

Mayoud, P.: Note on the Treatment of Muguet in the Newly-Born. (*Revue Médicale.* Vol. v., No. 46. May 14, 1902.)

During an epidemic of muguet which occurred among the newly-born in the Crèche of la Charité during the month of February, 1902, the mouth was swabbed with nitrate of silver. In twenty or more cases of muguet treated by this method we obtained satisfactory results, and it appears to us that silver nitrate acts more surely and more rapidly than the borates. A solution of 1-100 was first tried and then 3-100—the latter proving more effectual. A cotton swab is improvised and after dipping this into the solution the child is permitted to suck it, this method sufficing in mild cases. In cases of thick plagues direct application is made with the swab. Neutralization of the silver nitrate with salt solution is not necessary. In order to avoid vomiting as a result of the application, it should be made in the interval of feeding. The application may be repeated every twenty-four hours if necessary but very often once suffices. The treatment was used in 23 cases of muguet in breast-fed infants; in 16 cases a single application effected a cure; in 6 cases two cauterizations were required and in 3 cases a third application was necessary. The writer thinks that the use of solution of nitrate of silver, 1-30, is destined to replace the borates which are so frequently without effect.

Rocaz, C., and Delmas, J.: Treatment of Pertussis by Compressed Air Baths. (*Archives de Médecine des Enfants.* Tome v., No. 5. May, 1902.)

The treatment of whooping-cough by compressed air baths is old. They have been utilized at various times and in different coun-

tries, and always with success. The fact that the administration of this treatment necessitates a special equipment explains its infrequent employment. Patients are placed in metallic chambers lighted by means of small, thick glass windows. Two tubes lead from each chamber, one communicating with an apparatus for compressing air, the other with the outer air. The two tubes have stop-cocks by means of which pressure can be regulated, a manometer recording the same accurately. The air introduced into the chamber is filtered through cotton. After treatment of each patient, the chamber is carefully disinfected.

It is difficult to explain in what manner the compressed air baths act—they seem to exert an antispasmodic effect. Hayem attributes this to absorption of nitrogen. It is known that compressed air increases the absorption of oxygen by the blood. This oxygenation of the blood has a beneficial effect in pertussis, as has recently been demonstrated by the treatment of this disease with inhalations of oxygen. The writers say that no accident has ever occurred during the treatment of patients, nor subsequently. The baths should be continued up to the time of cessation of the paroxysms. The writers warmly recommend the treatment of pertussis by compressed air baths.

Starr, Clarence L.: Treatment of Results of Infantile Spinal Paralysis. (*The Canada Lancet.* Vol. xxxv., No. 11.)

Four categories of cases present characteristic indications for treatment. (1) When an entire limb is paralyzed and surgical intervention powerless to relieve, mechanical supports must be employed. The simplest form is the crutch, but it is possible to build up a sort of skeleton artificial limb about the useless member, and if this is done, the patient can get about with the aid of a cane. (2) When the tibiales (anticus and posticus) are paralyzed—which is the rule in these cases—and the foot is thrown into a valgus position by the contraction of the intact peronei, with compensatory shortening of the tendo achilles, these last-named muscles must be tenotomized and the foot restored to its normal position by retention in a plaster of Paris cast. A mechanical device in the shape of a boot or brace may then be worn. (3) When the action of the intact muscles may be improved or multiplied by tendon-transplantation, this comparatively new resource should be utilized. Cases

belonging under the previous category may receive additional benefit from transplantation. (4) There are certain cases in which mechanical supports are, for one or another reason, contraindicated. These devices need constant repairing, and the patients may reside at a great distance from the bracemaker. Under such circumstances, the only hope for the patient lies in the effacement of his joints by the artificial production of ankylosis. His leg thus becomes a rigid prop, which may enable him to get about.

Combe and Narbel: The Treatment of Athrepsia in Children. (*Archives de Médecine des Enfants.* Vol. v., No. 7, July, 1902.)

As an introduction, Dr. Combe gives a clinical picture of this disease, stating the indications for the treatment of the same.

Dr. Narbel describes the lesion in intestinal athrepsia as an atrophy of the mucous membrane, resulting from a chronic enteritis; the atrophy is so marked that macroscopically it is often difficult to distinguish the mucosa from the serous surface. All the coats of the intestine are thinner than normal. The treatment of these cases is difficult and usually fruitless.

A series of observations were made in the pediatric service of Prof. Combe, under whose direction a new method of treatment was tested. The substance used is a product of the yolk of egg, and is a concentrated albumen whose commercial name is lecithin.

A number of children whose condition was grave and who appeared to have no chance of recovery were treated; of these cases five are described. A chart accompanies each case, showing the fluctuations of temperature, the body weight and the periodical administration of nourishment estimated in grams.

The technic employed is simple. Lecithin is sold in sealed tubes; 1 c.c. of it was injected into the muscles of the thigh every two days with a Pravaz syringe, which was first boiled, the skin having been carefully cleansed. No accidents occurred and no trouble was experienced as a result of the treatment.

The writers say that their article is merely a preliminary report.

Hammond, Graeme M.: The Education and Development of Neurotic Children. (*The New York Medical Journal.* No. 1239.)

The neurasthenic temperament appears at about the fifth or sixth year, and is characterized oftentimes by excess of mental overphysical development. These children are fretful, irritable and changeable. The temperament becomes accentuated at puberty, and sometimes actual neuroses develop. A marked feature of this condition is want of stability and application, so that these individuals seldom succeed in life. It is possible, however, to antagonize this tendency with success. The diet of a neuropathic child should be essentially nitrogenous, unless of course epilepsy appears. Strict discipline, by promoting the formation of steady habits, will do much to correct the native instability. Above all, one must not allow these children to study hard, for their mental superiority is only apparent. Physical training, on the contrary, should be encouraged in every way. These neuropathic tendencies may in fact be subjugated completely by placing the subject under a system which shall regulate the diet, sleep, clothing, ventilation, and secure out-door life and exercises of all kinds. We must remember, however, that too strict a system may cause physical breakdown.

DeLee, Joseph B.: The Treatment of Asphyxia Neonatorum. (*International Medical Magazine.* Vol. xi., No. 8.)

The indications are to maintain animal heat, free the air passages from obstruction and promote respiration. The first is filled by the warm bath or warm covering, the second by sucking out the tracheal mucus by the agency of a soft woven catheter (in mild cases mere swabbing of the pharynx will suffice), and the third by rhythmical compression of the chest, Schultz's swinging or mouth-to-mouth inflation. The author appears to favor the last-named resource, which should be practiced with a special insufflator containing a bulb for the arrest of mucus, etc., during aspiration. Schultz's swinging is an adjunct of value and has a prognostic significance; for if the child is susceptible of reanimation, a few swings should promote the action of the heart and lungs. As a unique resource which has sometimes proved of value, the author mentions direct percussion over the heart.

Wentworth, A. H.: The Importance of Milk Analysis in Infant Feeding. (*The Boston Medical and Surgical Journal.* June 26, 1902.)

Having made a number of analyses of milk, according to the method recommended by Dr. Charles Harrington in his book on "Hygiene," the writer summarizes his results as follows:

1. The general statement that the upper one-fourth of one quart of cow's milk in which the cream has risen contains 10 per cent. of fat, represents the average of a large number of milks. There is too much variation in milks from different cows to enable one to figure modifications of milk on this basis with any degree of accuracy.

2. The results of the great variation in cow's milks would not be of so much consequence if the percentage of fat in the cream were always low. Too much fat in a modified milk is more likely to cause digestive disturbance than too little.

3. It is advisable, therefore, to have the percentage of fat determined in the cream at least once whenever an infant begins to use modified milk. It is also advisable to have the fat determination repeated at the times of year when the cattle's food is changed.

4. It is not advisable to modify milk with a cream in which the percentage of fat is too low—under 10 per cent.—because if one obtains a sufficient percentage in the modification, the percentage of proteids will be too high in many cases.

5. If the percentage of fat is too low in the upper eight ounces from one quart of "set milk," it is better to take fewer ounces off of the top, determine the percentage of fat in these ounces, and use such a number of ounces of cream as contains 12 per cent. or more of fat. If more proteid is required, it can be obtained by the addition of lower milk, which is almost free from fat.

6. A safe rule would be to have at least one determination of fat made, no matter how many ounces are taken from the top of the "set milk," and afterward to continue to take the same number of ounces off each time.

7. In order to make a modification of milk in which a high percentage of fat is combined with a low percentage of proteid it is necessary to use a cream that contains a high percentage of

fat. In general it is better to use a cream removed from the milk at home than to use cream bought for this purpose, because the latter is much more likely to be stale and to have undergone changes due to heat or age.

8. Within certain limits, accurate percentage modifications of milk are not essential to the well-being of a majority of the babies that are fed on modified milk. Proof of this is afforded by the fact that so many infants do well when fed on modified milk, and yet it has been shown by the results of analysis that these modifications are rarely accurate.

9. The advantage of modifications of milk furnished by establishments is that it is convenient. Three great objections to the use of commercial modifications of milk are: (a) inaccurate modification; (b) stale milks; (c) expense.

10. The technique of fat determination by the Babcock method is simple and easily acquired. The entire outfit, including a centrifugal machine, flasks, pipettes and acid can be purchased for nine dollars. The time required for a fat determination by this method is about fifteen minutes.

Halle and Babonneix: Three Cases of Epilepsy Successfully Treated with Bromin and Without Salt. (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 9.)

The simplest method of prescribing bromidization without salt is to place the patient upon a milk diet, and by giving enough milk or adding a little bread, sodium chlorid in quantities sufficient for strictly physiological purposes can be ingested. In the authors' 3 cases they simply forbade bread and allowed broths and purées without salt, giving milk to drink. The organism, when in a state of hypochloridization, is far more sensitive to the action of bromids than normally, and in order to avoid intoxication phenomena the dose should not exceed two grams in a child and four in an adult. When this rule is followed no bad results are seen, while amelioration of the epileptic seizures seems to be rapid and permanent. The method is worth a trial in every case of epilepsy in children.

Two cases reported by the writers were aged fourteen years and the other was nine. Improvement was marked so long as the treatment was continued.

ARCHIVES OF PEDIATRICS.

VOL. XIX.]

DECEMBER, 1902.

[No. 12.

Original Communications.

SEPTIC ENDOCARDITIS.*

BY SAMUEL S. ADAMS, A.M., M.D.,
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The interest manifested by my colleagues of the Children's Hospital, Washington, D. C., in the recovery of a case of septic endocarditis under my care, and the recital of other recoveries from this disease by members of the Association of American Physicians, have induced me to collate the cases in children fourteen years of age and under which have resulted in cure, as well as to review the literature of endocarditis in its relation to infection as the causative element. The difficulties encountered in this attempt were often embarrassing, and at times appalling, because (1) the subhead "Endocarditis," as indexed at the Library of the Surgeon-General's Office, is lost under the headings "Heart (inflammation of)," "Heart (disease in children)," etc.; (2) a number of the cases here collated were not indexed, and in many instances were traced from allusions to them, found by collateral reading; and (3) owing to the confusion in the classification of the varieties of endocarditis, the greatest liberality being shown in the descriptive adjective; on the one hand the terms "simple" or "benign," and on the other "ulcerative," "malignant," "infective," "diphtheritic," "septic," "fungating," and "mycotic," being subject only to the license of the author or reporter.

The effort has been made to collate only such cases as may be considered infective from the specific statement of the author, or from the characteristic clinical picture by which the disease is more frequently diagnosticated than from either bacteriologic or post mortem findings. It is not claimed that every published case

* Read before the American Pediatric Society, Boston, May 26, 27, 28, 1902.

of cure is included in this list, for in all probability there are some recorded in text books or incidentally mentioned in other works which have escaped us, but it is certain that all indexed cases, as well as those which were accidentally discovered, are here reported.

Unless we attribute the small number of cases reported to failures in diagnosis, septic endocarditis in children resulting in recovery may be considered to be a rare affection. Donkin says it is not frequent in childhood, and has no clinical peculiarity at this period. He saw only 3 probable cases, which were suspected during life, only 1 having been submitted to post mortem examination, which alone gives positive evidence of this disease. It is sometimes found post mortem where it is not suspected, but it is still more often suspected where it is not found.

Gorwitz, on the other hand, draws the following conclusions: (1) By the side of the classic, infectious endocarditis, we place, in the cases described, a form as yet little known. (2) This form is rather peculiar to infants. (3) The beginning is insidious, the progress slow, the heart is little affected, as also the other organs. (4) The infection dominates the scene, leaving in the second plane the circulatory apparatus. (5) The prognosis, while grave, is not (*necessarily*) fatal; it is subordinate to the degree of infection. (6) The invalid may recover, but the affection leaves, as a trace of its passage, an organic lesion of the heart.

Osler says that in 209 cases of endocarditis which he has studied, there were but 3 under ten years of age. Whittaker says: "It is rare in infancy, but begins to show itself with the occurrence of various infections." The records of the Children's Hospital at Melbourne furnish but 1 case in ten years. Davies finds but 1 case similar to his own in the Transactions of the Pathological Society (London); it is that of a girl one year old, under the care of Dr. Sharkey. This case I have been unable to find elsewhere.

The earliest case, that recorded by Kirkes, who first recognized and described the disease, was in a boy aged fourteen years. Only a single case appears in the records of the London Hospital for Sick Children during the two decades ending in 1890; and my case is the only one treated in the Children's Hospital, D. C., since its organization in 1870.

Kanthack and Tickell have studied 84 cases in St. Bartholomew's Hospital from January, 1890, to March, 1897. The fol-

lowing were found in children: By age, 1 to 5 years, 1 male, no female; 5 to 10 years, 2 males, 2 females; 10 to 15 years, 2 males, 4 females. Of these 84 cases, 60.7 per cent. were males, 39.29 per cent. females. 62.7 per cent. of males between twenty and forty years; 51.5 per cent. of females between ten and thirty years; 33.3 per cent. of females between fifteen and twenty-five years.*

In connection with the statistics given by Kanthack and Tickell, those of Thiele are interesting. Between 1873 and 1887, 4,979 necropsies were made in the Pathologic Institute at Kiel. Of these endocarditis was found in 373 cases, 168 (45 per cent.) in females, 209 (56 per cent.) in males, and the sex not stated in 1. Under 1 year, 5 males, 6 females, total, 11. One to 9 years, 10 males, 8 females, total, 18. Ten to 19 years, 14 males, 12 females, total, 26.

Fresh hemorrhages, old hemorrhages, infarcts, and embolic abscesses were found in the brain, retina, lungs, liver, spleen, and kidneys.

While it is generally admitted that septic endocarditis is a specific affection, nevertheless there have been many pathologists, bacteriologists, and clinicians unwilling to accept it as such. Lazarus-Barlow contends that, in spite of the fact that physicians recognize two varieties of acute endocarditis (simple and malignant), and that they differ in their clinical pictures, the difference between simple and septic endocarditis is one of degree, dependent upon the virulence of the microorganisms or their toxins. He admits that microorganisms are almost invariably found in the vegetations on the valves in infective endocarditis, but asserts that they are frequently found in the so-called simple variety, and that the same microorganisms are present in both conditions. According to his interpretation, the microorganisms act as irritants, producing not only inflammation in simple, but inflammation plus necrosis in septic, endocarditis. His explanation of the difference in the pathological processes produced by the emboli which are broken off from the vegetations and carried in the blood-currents is that such emboli are aseptic in simple, and septic in infective, endocarditis. The effects also of the two varieties upon the heart itself are merely differences in degree; both forms produce changes in the myocardium, though the

* This note is added lest the relative predominance of females in list lead to erroneous conclusions.

ulcerative, from the effects of its toxins, produces greater impairment of function of both heart muscle and valve.

Weichselbaum claims that there is no essential difference, either histologically or bacteriologically, between the two forms of endocarditis; that the same species of bacteria are found in both; and that in those cases in which bacteria have not been found they have either escaped detection or have died.

The trend of opinion to-day seems to accord with the views of Lazarus-Barlow and Weichselbaum that the two conditions differ in degree but not in kind; and one author suggests that the burden of proof falls upon him who would present a case of noninfective endocarditis.

Rosenbach, in 1878, induced acute endocarditis, experimentally, in animals by injuring the heart valves with a sound passed into the carotid; and, in 1885, Wyssokowitsch and Orth induced it by injecting pyogenic organisms into the circulation after the heart valves had been injured by Rosenbach's method.

A study of the experimental work of Netter, Ribbert, Fränkel and Sänger, Prudden, Weichselbaum, Stern and Hirschler, Viti, and others shows that true endocarditis can be produced in animals by injecting in the veins any one of the numerous microorganisms, provided the heart valves are diseased, although Netter and Ribbert think a previous lesion is not essential; and Dreschfeld and others have succeeded in reproducing the disease in animals without previously injuring the valves.

According to Wright and Stokes: "The first extensive study, however, of the etiology of acute endocarditis in man is that of Fränkel and Sänger, published in 1886. They studied 11 cases of verrucose and 1 of ulcerative endocarditis, and in 9 of them found bacteria in the cardiac lesions, the staphylococcus pyogenes aureus being present in 6." Netter found the micrococcus lanceolatus in 9 cases of acute endocarditis associated with croupous pneumonia. Of the 29 cases of Weichselbaum, the micrococcus lanceolatus was found in 7, the streptococcus in 6, the staphylococcus pyogenes aureus in 2; and in 6, various unusual bacteria; while in 8 cases no microorganisms were found. In 10 cases, Wright and Stokes examined the valvular vegetations and ulcerated tissues of the heart and found the micrococcus lanceolatus in 7, 1 being accompanied by the bacillus diphtheriae; the streptococcus in 1; streptococcus and staphylococcus in 1; and unknown in 1.

Dessy found in 36 cases of endocarditis (3 being ulcerative and

showing pneumococci) bacteria in 34; viz.; pneumococcus in 13; streptococcus in 12; staphylococcus in 3, and other species in 6. He considers the pneumococcus and streptococcus, either alone or associated with other forms, the cause. Lancereaux says that when infective endocarditis is found in connection with malarial poisoning, a frequent occurrence in Africa, its seat of predilection is in the aortic valves. Dassy informs us that the pneumococcus selects the aortic valve, and the streptococcus the mitral. Again, Raue explains "the almost invariable occurrence of endocarditis upon the left side of the heart, during extrauterine life, and a similar selective affinity for the right heart in fetal endocarditis," upon the ground that "endocarditis is an infectious condition" and "the germs which excite inflammatory reaction in the endocardium can thrive only in a medium of arterial (*i.e.*, freshly oxygenated) blood"—an idea perhaps indicated by Giraudi.

Dreschfeld summarizes the results obtained by different observers as follows:

1. That microbes were found in nearly all cases of infective endocarditis, regardless of ulceration.
2. That most observers found but one organism in their cases; a few, however, found two or more.
3. That the same organism was not found in all. In some the organism found was also met with in other infectious diseases; and in others the organism had not been found in other diseases.
4. In most cases, the organism found in the diseased valve also invaded the infarcts and metastatic abscesses.
5. The streptococcus, the staphylococcus, and the pneumococcus are the organisms most frequently found.

D'Astros comments on the difficulty of demonstrating the several steps of these infections during life; Achalme, for instance, in a case of endocarditis, complicating erysipelas, having failed to find the streptococcus during life.

The disease may be considered rarely primary. Osler states that it is engrafted upon a preexisting valvular lesion in 75 per cent. of cases; hence the microorganism invades the broken endocardium.

Dreschfeld says we may distinguish the following types of infectious endocarditis: (*a*) primary; (*b*) as a complication of septic disease; (*c*) as a complication of pneumonia or meningitis; and due to the diplococcus pneumoniae; (*d*) as a mixed infection,

due to septic organisms secondary to the acute infectious fevers, or secondary to rheumatic endocarditis or sclerotic condition of the valves.

Lazarus-Barlow says in many cases of pyemia a primary focus of suppuration is found, but this is not invariably the case, to account for the metastatic abscesses. In such cases cardiac symptoms develop and the necropsy reveals ulcerations on the valves. He admits in such cases the lesion in the endocardium as the immediate antecedent cause of the abscesses, because the pyogenetic organisms have been found there. "Where this is the case, association of the secondary abscess with embolism of particles of the septic vegetations on the valves is easy, especially in view of the fact that in these cases the metastatic abscesses are most commonly found in the spleen and kidneys, regions in which simple embolism and infarction are especially common in valvular disease of the ordinary kind." It is not easy to explain the valvular disease, which, in a majority of cases, antedates the ulcerative process. The microorganisms must gain access to the blood in order to produce their harmful effects. In all cases in which the microorganism is localized, and there are associated with it valve lesions and metastatic abscesses, the relation between cause and effect is apparent. The blood is invaded from a primary focus situated in the tissues. He assumes, therefore, the preexistence of a primary superficial focus, from which emanates the septic material in so-called primary ulcerative endocarditis. Micrococci may set up an ulcerative process in a simple valve lesion. It is probable that a valve affected with a chronic lesion may be unable to resist the invasion of pyogenetic microorganisms circulating in the blood. It is not necessary that such organisms should gain access to the blood immediately preceding the manifestation of the endocarditis. We believe that various forms of pyogenetic bacteria may remain latent in the body for a long time, and so that form of bacteria which is to produce the ulceration on the endocardium may have entered the body and have been stored in some tissue capable of resisting its pathogenic influence. At last some condition arises which leaves it free to gain access to the general circulation, when it attacks the diseased valves with great virulence.

This view is supported by the conclusions of Gorwitz, already given, as also by Anders, who says: "In purely septic diseases ulcerative endocarditis forms but a part of the serious gen-

eral condition. Here the cardiac element serves to facilitate the generation and rapid diffusion of the poison; and since the latter is prone to attack the valve segments, the morbid lesions within the heart not rarely constitute a chief pathologic factor in septicopyenia."

Everything except the main points in the history of my case has been eliminated.

ADAMS' CASE. Female, six years. Admitted Dec. 14, 1899.

FAMILY HISTORY.—Negative. Always delicate. At four years of age had measles; good recovery. Health good until August, 1899, when she was treated in this hospital for remittent fever, estivoautumnal type; not severe, but weakening. No cardiac lesion. Discharged, cured, September.

December 1st, Readmitted.—Severe chill, fever, sweat, intense headache. Next day another chill. Estivoautumnal parasite found. Quinin sulphate given.

December 9th.—Tired, quiet all day.

December 15th.—Temperature 103.4°. Dyspnea, brief unconsciousness, continuous high temperature, 104°; pain in abdomen and precordium. Well-nourished, very anemic, distressed look. Respiration rapid, not embarrassed. Chest well formed, equal expansion. Slightly impaired percussion resonance at right scapular angle. Loud bronchovesicular breathing at left apex; almost bronchial at right scapular angle; many râles, moist and crepitant. Breath offensive, appetite poor, tongue coated, bowels constipated. Throat, abdomen, liver, spleen—negative. Pulse full and bounding, impulse heaving. Marked apical thrill; beat diffused over space one inch in diameter; area of dullness but slightly increased. Harsh, strong, presystolic murmur at apex, not transmitted. Second sounds much accentuated, especially pulmonic. Urine diminished, thick, cloudy; many amorphous urates; no albumin nor casts. No pain. Sleeps poorly. Interrogated: "Feels all right." (See cut.)

December 16th.—Temperature range 101° to 103°. Slept fairly. No urine at night. Pulse rapid and strong. Heart murmur slightly changed, double at apex. Small area dullness, left scapular angle, with bronchial breathing.

December 18th.—Temperature the same, irregular, with evening rises. Presystolic murmur and thrill have disappeared. Soft, blowing, systolic murmur transmitted to axilla; other valve sounds clear and distinct; pulmonic second sound still markedly accentuated.



LARGE CIRCLE: AREA OF RELATIVE DULLNESS OF HEART. SMALL CIRCLE: DIFFUSION OF APEX BEAT.
DULLNESS. A: AREA OF DULLNESS AND BRONCHIAL BREATHING.
STARS: AREA OF ABSOLUTE HEART

From Jacobi Festschrift. Courtesy G. P. Putnam's Sons.

December 20th.—Same condition, with slight to-and-fro friction at base of heart; action tumultuous and plunging; apex beat much diffused; dullness much increased.

December 22d.—Examination by Dr. Wm. B. French for plasmodium malariae negative. Slept poorly past two nights, vomiting nourishment several times. Stopped quinin. Pulse weak, rapid, and at times irregular. Given tincture of digitalis. Voids only eight ounces urine in twenty-four hours.

December 26th.—Temperature normal, respiration rapid and labored. Sleeps better; does not vomit.

December 30th.—Temperature 1 P.M., 102°; respiration as before. Pulse full and bounding; heart-sounds muffled, with marked double murmur at apex, change coincident with rise of temperature.

January 1, 1900.—Temperature intermittent, 98.8° to 103.4°. Oral mucous membrane shows small purplish spots. Respiration very labored. Pulse weak and irregular at night, full and bounding during the day. Retains all nourishment. Splashing sound at base, marked systolic murmur at apex transmitted to axilla, second pulmonic markedly accentuated; impulse heavy and diffuse. Child sleeps with eyes half closed; breathes altogether through mouth; rests well; no pain.

January 3d.—Single systolic apical murmur, transmitted to axilla. Perspires freely about head and neck, has had several drenching sweats in the past twenty-four hours. Spots disappeared from mouth. Retains nourishment. Bowels constipated.

January 5th.—Has vomited a great deal, clear green fluid, streaked with blood. Refuses nourishment. Does not sleep at night. Cries a great deal, but no pain complained of. Temperature dropped by crisis, being 99.8°.

January 7th.—Nourishment retained. Urine still diminished in quantity, quality the same. Face slightly swollen. Pulse full but compressible, at times weak and irregular. Sleeps much better.

January 8th.—Temperature commenced to rise.

January 9th.—101° to 102°; other conditions unchanged.

January 11th.—Temperature still elevated. Pulse and respiration rapid and full. Cried several times during night; no pain complained of. Murmur same, loud, blowing; obscure valve sounds; splashing audible at base.

January 13th.—Sleeps poorly, seems gradually weaker.

Cough frequent. Temperature about 103° , with frequent excursions to 104° . Urine still diminished; perspires freely; marked odor of urine. Numerous moist râles, large and small; diminished breath-sounds at bases, rough elsewhere.

January 15th.—Yesterday, pain in cardiac region increased on coughing. Vomits nourishment frequently. Otherwise the same.

January 17th.—Restless at night, crying and picking at face and bedclothes; complains bitterly of pain, stabbing in character, in region of heart; tenderness on pressure. Cough frequent and hard. Nourishment retained. Stools involuntary, large and loose.

January 19th.—Slept better, less pain. Temperature dropped to 100° . Cough frequent. Urine diminished.

January 23d.—Stools involuntary, large, yellow, undigested. Temperature intermittent, 100° to 103° , rise in evening. Cough frequent and hard, no expectoration. Splashing not heard; sounds still obscure; churning sound; impulse forceful and heaving; apex beat much diffused. Lungs same.

January 25th.—Culture from vein in arm inoculated upon three blood serum slants. After twenty-four hours' incubation, the culture shows numerous streptococci and another unrecognized bacillus. (Dr. French.)

January 26th.—4,500,000 red blood corpuscles per cm. Hemoglobin 62.5 per cent. Leukocytosis. (Dr. Thomas.)

January 27th.—Photographed; cardiac area and apex impulse outlined with ink. Sounds changing somewhat; impulse not so heaving; churning not so audible; valve sounds more distinct; murmur not so prominent, nor does it obscure sounds so much. Temperature continues about 100° to 101° .

January 31st.—Temperature made another rise this A.M., but dropped quickly to 99.6° . No pain. No other change noted.

February 10th.—Cardiac area much increased; impulse heaving, and widely diffused, noted over whole cardiac area. First sound obscured. Murmur loudest at apex, traced to left scapular angle. Systolic splashing and churning not heard; slight rubbing at base. Sleeps well and takes all nourishment.

February 20th.—Condition of heart unchanged. Has whooping-cough, ten to fifteen paroxysms daily which greatly exhaust her.

November 1, 1902.—This child remained in the institution

until the summer of 1900. Soon after her recovery from whooping-cough she had a severe attack of measles, complicated by croupous pneumonia; she had only reached convalescence when chicken-pox of a severe type jeopardized her life. She slowly gained strength and weight; the heart's action steadied, and she was removed to a Western state about the middle of July. I have heard from her but owing to the remoteness of her residence from a town it has been impossible to have a physical examination made. Her grandmother declares that she is now a robust, rounping schoolgirl; that she is a bright pupil, and that no one would ever imagine from her present appearance that her life was ever in danger.*

Of 47 cases under fourteen years collated, there were only four recoveries, including my own case. The histories in brief of the three are as follows:

CASE I.—Gorwitz (Mlle. C. R.), Paris, Thesis, Abst. *La Med. Infantile*, 1894, I., 475.

Male, eleven years. Rheumatism. Infectious endocarditis. Recovery in two months with persistent cardiac lesion.

CASE II.—Sainsbury. (H.). *Lancet*, London, 1896, II., 1079.

Male, thirteen years. Thrill and double apical murmur. (June 22d.) T. 103.2° F.; (24th) violently delirious. T. 100°-101°; no streptococci in blood. (25th) Rusty sputum, no rigor. (26th) Symmetrical erythema, general, five days. (July 1st) Streptococci in blood. (9th) General improvement. (20th to 24th) Rash returned, cardiac dullness increased. (28th) T. 104.4°, no rigor, but vomiting, cough, bloody sputum. (August 5th) Worse; sputum blood-streaked and clot; thought spleen palpable. (17th) 20 c.c. antistreptococcic serum, T. 99.8°; no local nor general reaction. (18th and 20th) 10 c.c. serum; improvement; skin peeled and cleared. (22d and 25th) 10 c.c. serum. (26th) Rash and much itching. No streptococci. (September 1st) 10 c.c. serum, slight reaction, local and general. T. 102°. patient seemed ill, pain at puncture, twenty-four hours; recovery.

CASE III.—D'Astros. (Leon), *Rev. Mens. des Mal. de l'Enfance*, Paris, 1898, XVI., 601.

Male, seven years. Erysipelas. Auscultation, nothing abnormal at first. T. reached 106.8° F., pulse 142. Two injections, 10 c.c. each. Recovery. Persistent mitral lesion.

* This paper has been withheld in the hope that the present condition might be annexed, but waiting seems in vain.

DISCUSSION.

DR. CRANDALL.—I think our ideas as to septic endocarditis would be clearer if we got rid of some of the old terms, particularly that of "ulcerative endocarditis" and understood that endocarditis is secondary to some condition that has preceded it. The endocarditis of rheumatism is caused by the rheumatic poison, and we look upon it as a complication of the original disease, and so with septic endocarditis. If it occurs with pyemia we recognize it as secondary, but when the septic conditions are less clear then it does not seem so plain. Still it is probably always the case that there is some general septic condition preceding it. I saw two weeks ago two specimens of hearts one of which had occurred in the course of rheumatism, and the other in the course of a septic disease. Yet everyone who saw the two specimens selected the first as the septic one. It is not always possible to determine from post mortem appearances what was the cause of the endocarditis.

DR. WILSON.—I think our conceptions as to certain forms of disease are influenced by the terminology used. In regard to endocarditis, the classification may be bacteriological, pathological or clinical. Often the bacteriology remains obscure and while the physical signs and existing history may justify conclusions as to gross pathological changes, in many cases both the bacteriological and pathological changes can only be inferred.

On the other hand, clinically, the different forms are rather more distinct and it seems to me that it is best to adhere to a nomenclature more distinctly clinical. We have to deal with forms properly called benign, many of them so benign that in the absence of physical examination their existence would not be suspected. On the other hand we have to deal with cases of endocarditis obviously grossly malignant. Yet from a bacteriological and pathological standpoint there is no distinct line of demarcation between these two extremes. At one end of the series we have, both bacteriologically and pathologically, the benign cases, at the other the malignant and midway between these cases, in which it would be a little difficult from the clinical phenomena to say whether they should be regarded as benign with aggravated symptoms, or malignant with mild symptoms.

So much for the physiological standpoint. Speaking now from the standpoint of the teacher, with reference to cases presenting symptoms of the malignant type the symptom complex which goes to make up the typical, well marked forms is characterized by recurrent chills, irregular high temperature, profuse sweating and rapid wasting, with the development of physical signs that are characteristic of coarse changes in the endocardium, and particularly in the valvular endocardium, and by the frequent occurrence of embolism in various parts of the body. There are cases that arise from septic processes in distant parts of the body, necrotic processes, septicemia, etc., which usually terminate fatally, but

occasionally in recovery, as for example, in puerperal sepsis. Then there is a group of cases in which it is not uncommon for all these symptoms to arise and the patient recover. There are especially cases of recurrent endocarditis in old valvular disease originally of rheumatic origin. I have had under observation in the last five weeks a case of that kind which is now recovering. The severe symptoms have passed away, although for a week or ten days the outcome was very uncertain. The patient is now sixteen years old, and has had chronic valvular disease involving both mitral and aortic valves, three or four benign attacks, but the attack through which the patient is just passing was malignant with all the phenomena of that type emphasized, not excepting embolism and monoplegia of the right arm.

DR. MILLER.—I am not familiar with septic endocarditis in childhood, but have seen the same condition apparently get well in adults. In very young infants septic endocarditis, I should think, would be rather frequent, as septic conditions are very common in the new born. I remember treating a case of chronic valvular disease of the heart in a patient at the age of two years, the initial lesion of which must have occurred many months earlier. Such cases are not uncommon, and are due to attacks of endocarditis dating from early infancy.

DR. JACOBI.—Such cases are caused by either bacteria or toxins. Bacterial deposits on the valves, usually below the valves, generally near their insertion, are those which would probably be called malignant, for from them emboli will be taken up and septicopyemia produced. The second class are those cases which are not the result of bacteria, but of toxins. They are those which are apt to get better. The toxin will be eliminated after doing a great deal of damage, but a toxic carditis may get entirely well by this elimination, as for instance in influenza and typhoid. That is an occurrence which is quite frequent. Six or eight months may suffice to restore the organ to its normal, healthy condition.

Then there is another difficulty. Is it always an endocarditis with which we have to deal, or is it not rather often a myocarditis? The murmur in myocarditis will often give us the impression of endocarditis. There need not be bacteria in the case at all. In those cases where we have bacterial deposits on the valves I do not think we can safely expect to have recovery take place, but in toxic endocarditis very often. The principle difficulty is that we make the diagnosis of endocarditis when we have myocarditis, for the murmurs may be exactly the same. If there is a point of diagnostic importance it is this, that in chronic cases there is absence of dilatation and hypertrophy in myocarditis, but the presence of hypertrophy where we have to deal with valvular disease. We should make this distinction first, whether myocarditis or endocarditis, and, secondly, whether bacterial or toxic. We cannot prove when an alleged endocarditis gets well that it was not a

myocarditis we had to deal with. I think that most of the cases we find getting well have been myocarditis.

DR. SEIBERT.—I would like to ask the bacteriologists present if I am right as to whether Wasserman did not publish, the case of a young girl about a year and a half ago, who died of endocarditis within three days of the beginning of the attack, where he succeeded, for the first time, in taking bacteria from the endocardium which lived in the culture media he selected, and from which cultures he succeeded in artificially producing acute articular rheumatism in animals? The reason he had not formerly succeeded in cultivating this germ was that the culture media that he had used before had not a sufficient degree of alkalinity, thereby proving that the doctrine we were taught, to render the blood of rheumatic patients alkaline, was aiding the bacteria in maintaining life in the blood circulation.

The question in this case of Dr. Adams is what is septic endocarditis and what is rheumatic endocarditis? I believe the only distinction we can make is that made by bacteriologists and from them I am quite sure we would have malignant rheumatic endocarditis as well as malignant purulent endocarditis.

DR. ADAMS.—From the physiological standpoint I agree with Dr. Wilson. I think a great deal of confusion as to terms has arisen. Somebody says it is malignant and we accept it as such.

Now this child was treated in the hospital in August for the estivoautumnal variety of malarial fever by quinin and was apparently cured. Dr. Acker was attending to my service and he examined the child carefully and his notes show that there was no evidence whatever of any heart disease. She was readmitted in December, again carefully examined, and still no organic disease of the heart detected. She was then treated, before the blood examination was made, for the estivoautumnal variety of malaria, supposing it was a recurrence. She did not respond to the quinin this time, however, and then the bacteriologist reported that no organisms were found in the blood. The quinin was discontinued, the septic condition became more and more manifest and the murmurs made their appearance. With the recurrence of the chills and sweating we came to the conclusion this was a septic heart. I have had one case in an adult (the man died); and the picture was exactly like this child. Dr. Reed made the cultures from the heart which showed that it was what we recognize as septic endocarditis. I would not have presented the case but for the fact that at the Association of American Physicians Dr. Herrick reported some of these cases and Dr. Koplik asked me to report this one to our Society.

A REPORT OF THIRTEEN CASES OF EDEMA, APPARENTLY EPIDEMIC IN CHARACTER.

BY HALSEY DEWOLF, M.D.,

Providence, R. I.

The cases reported below occurred in the Providence Lying-in Hospital, during October, 1900, upon the service of Dr. Herbert Terry, to whom I am indebted for the privilege of presenting them. The somewhat unusual condition which is shown by this series may be called, for want of a better name, "Epidemic Edema."

During the first week in October, 1900, gastroenteritis was prevalent among the thirty-five babies then in the hospital. In spite of all precaution and treatment, this trouble continued throughout the month and resulted in a number of deaths. Finally, on October 23d, the first of the 13 cases of edema appeared, the others following closely during the next eleven days, until the last, which began on November 3d.

The case records, considering only the main points, are as follows:

CASE I.—B. P., six days old. *October 23d.* There is no record of the bowel movements. Edema of feet appeared today. Heart, negative. Urine did not show albumin. *October 24th.* The edema became general in arms, legs, and face. *October 30th.* Edema had gradually lessened until on this date it had gone. The patient was discharged in fair condition. In this case there was no end result.

CASE II.—E. W., six weeks old. For five weeks the patient had had gastroenteritis. *October 25th.* Edema of the lower lids and lower parts of the face appeared. Heart sounds slightly irregular. There was no apparent valvular lesion. The urine showed a trace of albumin; no casts. *October 28th.* The edema was extreme in the face, hands and arms, feet and legs. *October 30th.* The patient collapsed and died on the following day.

Autopsy.—There was marked edema of tissues of the scalp, abdominal wall, peritoneum and omentum, with much free fluid in the pericardial and peritoneal cavities. The heart and kidneys were normal. The lungs, liver and spleen showed slight edema. The brain was soft and edematous.

Pathologic Report.—The organs on section showed passive congestion but otherwise nothing of note.

CASE III.—G. F. G., ten months old. "This child had gastroenteritis during the past summer, and now has frequent watery movements." *October 26th.* Edema of face, hands, and feet appeared. Heart, negative. Lungs: a few fine râles were heard posteriorly. Urine: pale, specific gravity 1038, no albumin. Temperature was subnormal. *November 8th.* "For the past two weeks the edema has gradually decreased. Today there is considerable twitching of right lower eyelid." The blood examination showed: hemoglobin, 60 per cent.; leukocytes, 11,400; red blood corpuscles, 2,972,000. *November 12th.* Temperature was 95.6° and the edema of feet had gone. *November 15th.* All edema had disappeared. *November 18th.* "Movements green, watery and contain blood. *December 1st.* Child improved until today, when again the edema appeared in hands and feet. Urine, negative. *December 19th.* Very slight edema of the face and of the prepuce. *December 29th.* For two weeks child has been failing. Today he died."

Autopsy.—Fat very scanty on the body and organs, which were normal.

Pathologic Report.—Cultures from one kidney and blood of the heart were sterile. From the other organs, they gave a diplococcus and a mixed infection of bacilli. Microscopic examination showed no disease of the organs.

CASE IV.—E. E., three months old. The patient had curdy and slimy bowel movements for a number of days. *October 26th.* Slight edema of feet and hands. *October 27th.* Some edema of the face. Heart, lungs and abdomen negative. Urine: no albumin. *October 30th.* Edema, general and extreme. *November 6th.* "The edema has been decreasing and is now almost gone. The stools are watery and loose. Child vomits frequently. Urine: faint trace of albumin. Blood examination: hemoglobin, 70 per cent.; leukocytes 16,200; red blood corpuscles, 3, 363,000. *November 14th.* Edema has again appeared in the feet. The child is in a very weak condition. Today she was taken from the hospital against advice." No end result.

CASE V.—B. R., nine days old. Has had enteritis. *October 26th.* General edema appeared. Heart: a distinct systolic murmur at apex was heard. Urine: no record was made. *October 29th.* The edema is lessening. The heart murmur cannot be heard. *October 31st.* The edema is almost gone. Heart murmur is very faint. The patient was discharged in poor condition. No end result.

CASE VI.—M. N., six weeks old. The child has gastroenteritis, with green and slimy movements. *October 29th.* The edema is extreme, especially in face. Child collapsed today and died.

Autopsy.—There was marked anasarca of abdominal wall, with some free fluid in the peritoneal cavity, mesentery, and all the organs.

Pathologic Report.—There was some cloudy swelling of the epithelium of tubules and infiltration of the interstitial tissues with round cells (not marked).

CASE VII.—M. S., two years old. The patient has been in a very weak condition from severe enteritis. *October 27th.* Slight edema of face and hands appeared today. The skin feels quite hard. Heart sounds are very weak. Lungs and abdomen negative. Urine: albumin, $\frac{1}{8}$ per cent. by weight; specific gravity, 1,012; no casts. Blood examination: hemoglobin, 80 per cent. leukocytes, 10,900; red blood corpuscles, 2,036,000. *November 5th.* Edema has increased and now involves the feet and legs up to the hips. *November 11th.* The edema has gradually disappeared and is now gone. Urine, negative. *November 15th.* There is some rigidity of arms and legs. Urine, negative. *November 20th.* There is marked rigidity of the whole body. *December 23d.* The patient has failed slowly for the past month. The edema has not reappeared; while the rigidity of the body has disappeared. There has been cough, with pneumonic symptoms. Died.

Autopsy.—Passive congestion at bases of both lungs which were hard and noncrepitant. Other organs were pale, but not otherwise abnormal.

Pathologic Report.—The cultures from kidney and spleen gave growths of streptococci and of the micrococcus pyogenus albus; from the liver, the micrococcus pyogenus albus; and from the heart, the micrococcus pyogenus albus and a short bacillus. Microscope showed cloudy swelling of kidneys, and the lungs some bronchopneumonia.

CASE VIII.—J. M., the age is not recorded. The patient has enteritis. *October 29th.* Edema of the face appeared today. Urine, pale; trace of albumin; no casts but a few red blood cells. *November 1st.* The edema continues. The patient is taken from the hospital against advice. No end result.

CASE IX.—J. E., two weeks old. Has no bowel trouble, the movements being now perfectly normal. *October 30th.* Edema of the face, feet and hands appeared today. Urine, trace of albumin. Heart sounds are soft. *November 9th.* The edema

has been excessive, but is now gradually lessening and is almost gone today. There has been constant vomiting. Urine, no albumin. *November 30th.* The child has remained in miserable condition, failing from day to day, though the vomiting has ceased and the movements have improved. Collapsed and died. No autopsy.

CASE X.—A. P., eight months old. The patient has had enteritis for three months. The movements are now green. *October 31st.* There appeared today edema of feet and left side of the face. Heart and lungs negative. Urine shows a trace of albumin; no casts; a few pus cells. *November 6th.* The edema has disappeared. Hemoglobin 75 per cent. *November 14th.* Movements are now correct and patient is in fair condition. *December 14th.* There has been some cough and a gradual loss of strength during the past month. *January 25th.* Bronchopneumonia attacked patient and today she died.

Autopsy.—There was a bronchopneumonia of both lungs, the other organs being normal.

CASE XI.—U. R., the patient, a seven months, premature infant, is now two weeks old. Stools have been green and watery. There have also been convulsive movements of right leg and arm. *November 2d.* Slight edema of face, feet and hands has appeared. Temperature 96.2° F. Urine, shows albumin $\frac{1}{4}$ per cent. to $\frac{1}{2}$ per cent. Several broken down, pale, granular casts. *November 4th.* The edema is lessening. *November 5th.* The patient collapsed and died. No autopsy.

CASE XII.—F. K., the patient is two months old and has had enteritis for a month, the movements now being brown and watery. *October 30th.* There appeared today some edema of the face. Heart and lungs negative. Urine, shows albumin (trace), and a few pale, granular casts. Blood examination: hemoglobin, 60 per cent.; leukocytes, 12,200; red blood corpuscles, 4,428,000. *November 4th.* There is marked edema of face, feet and legs. *November 5th.* Today the edema has apparently invaded the glottis. The child died. No autopsy allowed.

CASE XIII.—B. T., twelve days old. There has been no enteric trouble in this patient. *November 3d.* Edema appeared today in face, feet and hands. Urine, not recorded. *November 4th.* There is apparently some edema of the glottis. *November 5th.* A pneumonic patch is found at base of right lung. There is some twitching of the eyelids. The edema is less marked. *November 8th.* Temperature 100.8°. Pneumonic symptoms are

present. The edema is gone. November 9th. Died. No autopsy allowed.

An analysis of the foregoing cases reveals the following general facts:

First.—The patients ages varied from six days to two years.

Second.—In Case I., the condition of the bowels was not recorded. *In all of the rest except Cases IX. and XIII., there had existed gastroenteric trouble of more or less severity, either immediately preceding, or at the time of the appearance of, the edema.* In Case IX., vomiting occurred the day after, while in Case XIII., green and slimy stools followed two days after the appearance of the edema. The hospital records show that, as the edema lessened, loose and watery movements occurred which later assumed a more normal character in those cases which survived.

Third.—Of the 13 cases, 9 died in the hospital, the remaining 4 being discharged against advice, in 3 of whom the edema still persisted. Of these 4 cases the end results are not known. The deaths occurred, for the most part, after several hours of collapse, the respiration failing before the heart. No deaths were accompanied by convulsions or coma. Of the 9 who died, 6 came to autopsy. Of this it was shown that 3 (Cases XIII., VII., and X.) died with signs of bronchopneumonia, one day, one month, and two months respectively, after the disappearance of the edema. The cause of death in the other 6 cases was not so clear.

The symptoms were so similar in all the cases, that they may be readily grouped. All the patients were pale and several pasty looking with a general appearance of apathy and depression. The temperatures were subnormal, the skin dry, soft, and pitting deeply on pressure. The edema in one of the cases first appeared in the feet, in 3 of them first about the face, while in the rest it began simultaneously in feet, face and hands. It increased rapidly and in a number of cases was intensely marked, the puffy face almost concealing the eyes, while the legs and arms looked as if they would spurt water if punctured. Another very noticeable feature was the rapidity with which the amount and locality of the swelling changed. One day the face would look like bursting and the legs almost natural, the condition being reversed the following day, or even a few hours later. A rapid increase in weight was either a forerunner or an accompaniment of the oncoming edema, with a corresponding loss as the edema disappeared. So far as was noted, there was at no time any marked

suppression or increase of the amount of urine. The enteritis cleared up largely, as the edema disappeared. Physical examination of chest and abdomen was negative except as above noted.

It may be here stated that none of these children was upon the breast, all being fed either upon modified milk alone, or the same with the addition of a cereal or proprietary food. Great care, and especially great at this time, was exercised in the handling of the bottles as well as in the disposal of the diapers. The cases were not confined to one ward but were distributed among three, two adjoining on the second floor and one separate upon the third floor of the building. Different nurses cared for the patients on the two floors.

In looking now for an explanation of this series of cases, three questions naturally present themselves. *First*, were the edemas due to a common cause; *second*, if so, was the cause operative from without upon each case or transmitted from child to child; and *third*, with the cause and its mode of operation determined, what was the pathologic lesion, if any such existed, which gave rise to the edema as a symptom? To answer these questions fully it is evident that some definite form of infection (bacteria, toxin, or some disease-producing element) must have been shown to be present in each case. It may be well here to say that none such was found and to admit that our final conclusions can be formulated, at best, only upon theoretical grounds.

First, that the edema was due to a common cause in all the cases seems probable, at least, since they appeared at practically the same time (all within a period of eleven days and several upon the same day) and all showed almost identically the same symptoms.

Second, that the cause of the edema was operative from without, rather than as an infection from child to child, is also probable for the following reasons: *i. e.*, the patients were in different wards, on different floors and attended by different nurses, in fact were almost as completely separated as if they had been in different buildings, yet the trouble broke out "simultaneously" on the second and third floors. It cannot be denied that the infection may have spread from child to child in the same ward, but there still remains the original infection of the first cases so widely separated. Finally, there was truly one possible source of infection shared alike by all the patients, that is, the milk. This had been tested and found excellent the previous month and unfortunately, while the edemas continued, was not suspected or

examined. If now we admit the probability of a common cause and outside infection in this series of cases we have still to answer the last question.

Third, what was the pathologic lesion which existed, or, in other words, what the true disease which gave rise to the edema as so prominent a symptom?

A search of the text books and of general literature shows that in childhood the varieties of edema are as follows:—1. Edema neonatorum. 2. Scorbutic edema. 3. Edema occurring in the leukemias. 4. Edema due to heart disease. 5. Acute circumscribed edema,¹ giant urticaria, angioneurotic edema. 6. Edema occurring in marasmic infants,² due to blood hydremia with weak blood vessel walls. 7. Edema due to renal disease.

Hereditary edema,³ malignant edema and wandering edema,⁴ are all so far out of the probabilities in this series of cases that they need not be discussed.

Groups 1, 2, and 3, may also be dismissed without further comment, as it is evident that the cases under consideration could be classified with no one of them. Group 4 may be ruled out, as in only two of the 13 cases were there heart abnormalities (functional murmurs in both cases) and no cardiac lesions were found post mortem.

Group 5 cannot be disposed of so easily, as this series of cases undoubtedly showed points in common with angioneurotic edema. However, the extent of the edema (involving at times almost the whole body surface), the absence of discoloration or irritation of the skin, the fact of the patient's extreme youth,⁵ together with the apparent epidemic form of the disease and its high mortality,⁶ point strongly against this as a cause of the cases with which we are dealing.

Group 6 may, on the other hand, afford us a partial explanation of the etiology.

In medical literature frequent reference may be found to this condition of edema occurring in depleted and anemic infants. All writers seem to agree that it occurs most often in cases of extreme malnutrition and anemia,⁷ and that it is due to a leaking of the blood serum through diseased vessel walls. Herringham⁸ adds to this that, in his opinion, there is "some original toxic poison, as that of scarlatina, which produces not only the anemia but also the edema as well." He adds that, "It is quite certain that in some cases anemia is not present at all, and in others it is by no means of that degree that would naturally account for

severe anasarca."⁹ Turning to our own series of cases, we find present distinct physical depletion with some anemia and the possibility, at least, of some specific toxin originating in the gastrointestinal tract and, secondarily, affecting the whole organism. With these facts in mind, it seems reasonable to believe that here we have a partial explanation of the edemas.

Finally, we must consider whether or no renal changes were present and played a contributing part in the causation of the edema. That acute nephritis may occur at times in infants but a few days or weeks old, reference to Jacobi, Holt, Goodhart, Dickinson, Rotch, and others proves beyond doubt. Although the disease follows most often some one of the infectious fevers, especially scarlatina, other etiologic factors are mentioned, among which is intestinal disease. Jacobi¹⁰ lays much stress upon this cause; as does Nichols¹¹ of Montreal, who in special pathologic work upon the subject has discovered the colon bacillus in the diseased kidney. The method of infection, whether by toxins absorbed from the bowel or by direct infection by microorganisms passing through the mesenteric lymph nodes, liver, and so on to the kidneys, need not be discussed. Bearing in mind the possibility of such infection, do we find by reference to the foregoing series of cases, definite proof that kidney lesion or even renal disturbance was present in any or all of them?

In nine of the cases albumin appeared in the urine, while in 4 of the 9 (Cases VI., VII., XI., and XII.) there was further evidence of kidney involvement. Of these 4 (Cases VI. and VII.) showed post mortem, cloudy swelling of the kidneys, with the addition of "infiltration of the intestinal tissues by round cells" in Case VI., and the presence of streptococci in Case VII. In Cases XI. and XII. there were pale, granular casts in the urine. That casts were found in so few cases may be explained by the fact that the quantity of urine for examination was usually very small, and that no centrifuge¹² was used in throwing down the sediments.

Of the remaining 5 cases in which albuminuria occurred, the following is a brief summary:

Cases IV., VIII., and IX. did not come to autopsy, although IX. proved fatal, thus leaving the pathologic findings in doubt. Case II., dying while the edema was still present, and at autopsy showing normal kidneys, seems to relieve these organs of suspicion. In Case X., which died a month after the edema had

THE VALUE OF PROLONGED AND UNINTERRUPTED IMMOBILIZATION IN POTT'S DISEASE OF THE SPINE.*

BY V. P. GIBNEY, M.D.,

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As a result of a very long experience in the management of Pott's disease of the spine, I have come to look upon those appliances which require infrequent adjustment as the most serviceable of all the methods of treatment. If there is one disease which orthopedic surgeons are called upon to treat, Pott's disease of the spine is the one the pathogeny and the pathology of which are so well understood, at least by the members of the American Orthopedic Association, that definite lines of treatment can be formulated and ought to be practical.

From 1871 to 1882 a simple brace consisting of a back bar of steel, a side bar from the axilla to a point below the crest, a top and a bottom bar with the ordinary corset fronts was the only one in use at the Hospital for Ruptured and Crippled. This has since been designated as the Knight spinal brace. During that period it was a custom of the resident members of the hospital staff to spend a good deal of time in adjusting these bars so as to serve as proper splints for the back, and it may interest the members of the Orthopedic Club in Boston to learn that many good results were obtained; that is, where deformity existed, it did not as a rule increase, when the care which has just been mentioned was given in building and fitting the appliance. From 1882 to the present time various forms of apparatus have been employed in this hospital, such as a leather jacket, a manilla paper and glue jacket, celluloid, plaster-of-paris, the Taylor spinal assistant and the Dane brace. I have not mentioned these in the order of frequency, but just in a general way. The plaster-of-paris jacket is the one most frequently employed. From October 1, 1901 to October 1, 1902, there were employed in the Out-patient Department, 823, and in the In-door Department, 302 plaster-of-

* Read before the Orthopedic Club, Boston, November 15, 1902.

paris jackets. The steel braces used were 90 and 26 respectively. The expense attending the aluminum corset has made this rather prohibitory, and it is only in exceptional cases that this jacket is employed.

It is not my purpose to discuss the merits of the different removable braces and jackets but to direct your attention to the value of prolonged and uninterrupted immobilization. The terms, "prolonged," and "immobilization," need no definition, but the term, "uninterrupted," in this paper, means not necessarily a solid, non-removable jacket, but one that if it is removed is removed without disturbing the parts, the patient being partially suspended in the swing while cleansing and a change of undervests are made, or in a horizontal position, the same degree of care being maintained.

It is true I think in Boston as it is in New York that a patient once coming under intelligent orthopedic care is never allowed to sit or stand without support. In earlier years, before I became enamored of plaster-of-paris, I found that the steel braces gave better satisfaction when they were removed by myself at intervals varying from two or three to six or eight weeks. The term employed by the laity, "broken back," always seemed to me a good one to employ, especially when talking to the laity. It is perfectly well understood that a broken bone needs accurate adjustment of the appliance, and uninterrupted maintenance is required until repair is complete. It is a common remark with me in outlining a course of treatment, "This back is broken for all practical purposes and it needs a long course of splinting." This usually succeeds in enlisting the necessary home cooperation.

It is gratifying to realize that men throughout the country are taking more pains in the use of plaster-of-paris, and in my visits to the largest cities of this country, I have been delighted with the artistic finish and the lightness and the durability of plaster-of-paris jackets. The public, therefore, is less prejudiced against this agent than in former years. If the visit of Dr. Lorenz to this country accomplishes nothing more than removing the prejudice against the use of plaster, I am sure that all of us will feel that his coming was a godsend. When people read in the daily press that plaster-of-paris is put on a hip and pelvis, and is to remain for six or eight or nine months we somehow feel that there will be less opposition to prolonged immobilization than has heretofore existed. For several years, I have, even at a commercial sacrifice,

treated the larger number of my Pott's disease cases in private practice with infrequent jackets.

In 1885 or 1886 a little girl appeared at my clinic with a remnant of a solid jacket which I found had been applied at the same clinic two-and-a-half years previously. All that was left of the jacket was a zone about five or six inches in width around the loin. On removing this, the Pott's disease was found cured. There was a minimum amount of deformity, no pain or distress whatever, and no signs of any active disease. Since that time occasionally a patient applies at the clinic with a solid jacket which has been worn at least a year, and the clinical staff have insisted on my presenting this patient to the class as a curiosity.

These facts have led me to employ greater care in the application of plaster in my office with gratifying results. Whenever I am called upon to read a paper before a body as wide-awake as the one I now have the honor to address, I feel that statistics should be presented, that end results should be presented, and that I should have data bearing upon the cures, failures, etc. I have not yielded, however, to this feeling, but have at random selected from my shelves where my history sheets are kept a number merely to illustrate the value of infrequent jackets. At the same time I am not unaware of the few failures, yet in preparing this paper with the large number of histories before me, I am impressed with the enormous advantages of the management of Pott's disease of the spine in the way I have just indicated.

Let me by way of illustration mention a few facts in connection with the disease as it occurs in children. A boy, four years of age, (P. S., case, 1,917) was seen by me in consultation November 1, 1891. He had Pott's disease of the spine, mid and lower dorsal region. The attending surgeon had already advised the Taylor brace, and it devolved upon me to assist in the fitting of the same. This form of support was continued until 1897 when I began to reinforce it by plaster-of-paris. During this time a psoas abscess had formed, had been aspirated, and finally opened and drained, and the family began to see the advantages of the infrequent changes of the appliance. In the fall of that year the patient was suffering so much, and it was so hard to prevent excoriation that I succeeded in applying a solid plaster-of-paris jacket. From that time to the present he has worn one with a change or two a year, and in this way it has been possible for him to spend a part of the year in the Adirondacks, a part on

Long Island Sound, and a part in Lakewood. His parents feel that a good-fitting jacket is absolutely essential to his comfort and to his health.

A boy, six years of age (C. V., case, 3,489), was under my care from November, 1895, until April, 1898, the posterior spinal assistant being employed. It was hard to keep it properly adjusted even with the aid of a well-trained nurse. It was difficult to get him out of the city. Then I began to employ solid plaster-of-paris jackets, and from that time to the present I have seen him only once or twice a year. He has been able to get the benefit of climate, and his cure has been for some time well established.

A girl, twelve years of age (A. F., case, 3,477), with the disease in the lower dorsal spine, failed to get relief from steel braces because of the great amount of psoas spasm. Since I began using plaster, three or four years ago, the case has been more easily managed, the spasm has disappeared, and it is astonishing how happy the little girl is in the plaster casing.

It is unnecessary to add further evidence. I do want, however, to mention a few cases in the adult where the good results are striking. A young woman, twenty-three years of age (H. F., case, 3,935), came to me in 1895 with incipient lumbar Pott's disease. She had all the signs except deformity, and her sister was a patient at the hospital many years ago and is now a typical hunchback. This young woman was anxious to avoid deformity so I began treating her with plaster jackets. Suffice it to say she has for a year or two been wearing the ordinary corsets.

A woman, twenty-four years of age (K. W., case, 4,687), had dorso-lumbar Pott's with an enormous lumbar abscess. This was aspirated, a solid jacket was applied. Once in four or five months it was changed and the abscess aspirated, and she has made a perfect recovery. She was enabled to attend to her business, that of a dressmaker, and lost practically no time during the whole course of treatment.

A young woman, twenty-one years of age (J. C., case, 5,861), had Pott's disease since fifteen or sixteen years of age and had a well-marked deformity, the highest point of the apex being about half an inch from a straight line. She was developing paraplegia when I began employing plaster jackets in June, 1901. The paraplegia was complete in a short time, but repair soon began, and in July, 1902, she had recovered the use of her limbs, and since

then her recovery has been uninterrupted and complete. The deformity which she had has entirely disappeared.

A man, twenty-six years of age (H. L., case, 6,173), had Pott's disease of eight months standing. I applied a jacket in March, 1902, saw him a day or two after the application and the jacket was in good condition. He went to Buffalo and wrote me in September, present year, saying that he felt so well that he would like to have the jacket removed. I had him see Dr. Parmenter, who wrote me that the jacket was so comfortable that he did not remove it. This gentleman is attending to business daily.

There are many more presenting points of interest, but I pass on to a consideration of the details of treatment. In nearly every instance, I use Goldthwait's or Tunstall Taylor's kyphotome. I aim to get a little recession of the deformity whenever a jacket is applied. I use the seamless, stockinette shirting made of Angora wool. I use the Russian felt for padding along the spine, over the anterior-superior-spinous processes and over the free ribs. I am careful to have these pads sewed to the shirting, and in this way avoid any slipping or excoriation. Each layer is applied very smoothly and well rubbed with the hands. If it is a moist day, I take the precaution to dry the plaster bandages over a gas stove. I find it well to use a small dinner-pad, which does not interfere at all with the fitting of the jacket. If the jacket does not set well, or if it fails to fit, I lose no time in reapplying it, feeling that it is all-important to have as near perfect immobilization as possible. Where a corset-jacket is used, I have the patient in partial suspension in the swing when the undervest is changed, allowing not the slightest movement of the spinal column.

I am inclined to apologize for all these details, but I feel that any jacket or any brace which is a favorite with a surgeon needs, and generally gets, the greatest attention to detail.

Acetozone in Typhoid Fever.—Abt and Lackver, of Chicago, report 40 cases of typhoid fever in children treated with acetozone which is chemically benzoyl-acetyl-peroxid. The mortality rate of these cases was 5 per cent. The germicidal action of the drug was shown by the diminished typhoid odor to the stools and the absence of stupor and tympanites. The drug did not seem to act upon the heart or respiratory system.—*Theapeutic Gazette.*

FOURTH DISEASE OR WHAT?

BY FREDERICK T. SIMPSON, M.D.,
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In ARCHIVES OF PEDIATRICS, September, 1901, I reported an epidemic of eruptive fever occurring at the American School for the Deaf in Hartford, which was pronounced not scarlet fever by the highest authority, the most conspicuous feature of the disease being, however, desquamation in shreds and sheets of epidermis in about one-third of the cases. No fact has come out subsequent to that time which would modify any statement made in that report. I desire now to place on record the essential phenomena observed in a small series of cases of eruptive disease occurring at the same institution in the spring of 1902. The salient points were a pronounced eruption, no apparent disturbance of health, an incubation of more than two weeks and lamellar desquamation in two-fifths of the cases.

The first case to come to the attention of the authorities was on May 29th. To the matron of one of the dormitories (not the dormitory in which the epidemic of 1901 occurred) a boy, Jesse Butler, aged thirteen years, was brought by two classmates who had in some way found out that he was covered with an eruption. The boy affirmed that he was perfectly well. His pulse and temperature were taken and found to be normal. Three hours later another boy was reported as covered with a rash. In view of what had happened the previous year, I ordered all the boys in that division to be stripped and inspected. By this means, a third case was found and all the cases were at once isolated. Apart from the very pronounced rash, the only symptoms to be noted were a very slight reddening and suffusion of the conjunctiva and slight enlargement of post cervical lymph nodes. The rash was of a diffuse erythematous character, not scarlet but rose red in color, most pronounced on the inner surface of the arms, the shoulders, back and posterior surface of the legs. In some parts it was continuous like a sheet—in other places it was broken up by normal skin giving a mottled appearance or almost a mosaic pattern as it was hardly at all elevated above the surface. The boys were kept secluded and the temperature was taken morning and evening for a week, but was invariably found to be normal. Normal also were the appetite, sleep and all the

functions. Throats were daily inspected but nothing unusual was found. No cough existed. On June 3rd two of the boys were found to be peeling all over their bodies. The skin could be easily rubbed off in fragments of a half an inch or more in diameter. This soon ceased (in two or three days) and no peeling was noted on the fingers, palms or soles—so characteristic of scarlet fever. The eruption was visible for about a week.

The boy who brought the first case to the attention of the matron said that he had had the same thing some two or three weeks before. He lived in New Britain and was allowed to go there every Friday to stay until Monday. Inquiry revealed that he had been absent from school a week at that time and upon going to New Britain, I learned from his parents that a rash had been discovered upon him May 9th while he was taking a bath. In alarm, they had summoned their family physician, who examined the boy carefully and could find nothing the matter with him except the rash which he pronounced to be the result of something eaten by the boy. No peeling was noticed in his case.

The three boys, so far mentioned came more closely in contact with the New Britain boy than the other boys of the school sitting at the same dining table, being in the same class room and playing together.

Expecting that more cases would appear if looked for, I gave direction that the supervisors should be on the watch for such cases when the boys were taking their baths. The fifth case appeared June 16th, as near as I can determine. The supervisor neglected to report the case till after the school broke up (the 20th) and I did not see the case till at least five days had elapsed. Then I went to Newington and found exactly the same eruption on an otherwise perfectly well boy. The rash had disappeared from the trunk but was well marked on arms and legs. The supervisor described it as covering the boy like a sheet. This boy sat at the same table with the other boys and near to them.

I have been unable to trace the epidemic farther, but we have here in a group of schoolmates a harmless affection whose chief symptom is a vivid universal rose-red rash coming to notice on the following dates:

John Moran,	May 10th.
Jesse Butler,	
Wm. Sullivan,	May 29th.
Edward Griffin,	
Wm. Fraser	June 16th.

It will be noted that the discovery of 3 of these cases was purely accidental and the interrelations of them could only be determined in some institution like the foregoing. Neither in hospital practice nor in private practice, would such data be liable to come under observation. Three of the cases were seen by Dr. Henry Siglar, of Charity Hospital, New York, who agreed with me in being unable to classify the cases with any of the types of eruptive disease known to the profession. Mild scarlet fever would most nearly resemble the cases under consideration, but in mild scarlet fever the rash is scarcely perceptible while an accelerated pulse-rate, sore throat and strawberry tongue are usually present. Furthermore the type of scarlet fever prevailing in Hartford this season while not malignant is decidedly pronounced. To show this, I outline the leading features of those cases at the Hartford Hospital under my supervision at the time of this epidemic. If it be objected that hospital cases are severer than outside cases, the records show that in this instance at least the outside mortality-rate was fully equal to that of the hospital. The statistics, as furnished by Dr. Robert S. Starr, assistant house physician, show that a pulse-rate of over 140 existed in 17 out of 20 cases present at that time, that in the other 3 who were above the age of twelve, the pulse-rate was over 120; that a temperature of over 102.5° F. existed in every case; that desquamation lasting six weeks occurred in 19 out of 20 cases, the diagnosis being uncertain in the 20th case; that albuminuria occurred in 25 per cent. of cases; that there was enlargement of the submaxillary lymph nodes in over 50 per cent. of cases, and that otitis media was a frequent complication. In a word, that scarlet fever in Hartford outside of the American Asylum was typical scarlet fever in every respect. Finally the interval of nearly three weeks between different cases of this group is an item counting strongly against any theory of scarlet fever. From german measles, the diagnosis is made by the absence of fever, cough and sore throat and by the presence of lamellar desquamation. Such skin troubles as acute exfoliating dermatitis and roseola are ruled out by the fact that they are neither contagious nor epidemic.

The present series of cases resembles the so-called fourth disease of Dukes in the incubation period (two and three weeks) in the presence of the enlarged post cervical nodes and slight conjunctival injection, in the profuse rose-colored rash showing a

decided tendency to early extensive exfoliation and in the slight degree of contagiousness, contrasting sharply in that particular with german measles. The unusual feature of these cases is the absence of fever or malaise. Possibly hourly examination of the rectal temperature might have revealed a slight rise. It was not to be detected by the usual methods. If, however, we once seriously consider the probability of the existence of a new infectious eruptive disease, the analogy furnished by the recent work in the bacteriology of meningitis (produced by twelve different bacteria, Osler) of exudative throat affections and of typhoid infections will lead us to the consideration of the possibility of the existence of several bacteria producing eruptive infections similar to those produced by the trio of measles, german measles and scarlet fever.

Structure of the Thyroid in the Newborn.—G. G. Perrando contributes to *Studi Sassaresi*, published by the University of Sassari, Vol. II., Section ii., No. 1. an exhaustive article on the structure of the thyroid in the newborn, with reference to various anatomic and pathologic conditions. There appear to be fewer variations in the glandular structure of the thyroid in human features than in those of other animals. The thyroid body of the female fetus is larger than that of the male. The pathologic condition of the mother and of the fetus has great influence on the weight of the fetal thyroid, augmenting it normally in cases of syphilis, diminishing it in cachetic states and in athrepsia. The first act of respiration brings about no appreciable change in the structure or secretory activity of the thyroid. The state of asphyxiation in the fetus generally produces a colloidal hyperdistention of the follicles. Normally the amount of colloidal secretion in the lymphatic spaces is scarce in the fetus and if it is much augmented it is an indication of pathologic condition. Many diseases of the mother and the fetus, especially syphilitic infection, are capable of producing induration, and more or less accentuate retardation or retrogression in the histogenesis of the thyroid. Hereditary syphilis on the other hand may give rise to marked, and at times enormous, enlargement of the organ through a conspicuous formation of fibrocellular elements. Augmentation of the fibrocellular tissue is not always an expression of an atrophic glandular condition. It is difficult to find syphilitic granulations or gumma in the thyroid; on the other hand, typical syphilitic alteration of the vascular parietes are easily found. A bibliographic note accompanies the article.—*American Medicine*.

THE CAUSE OF SORE ARMS IN VACCINATION.*

BY ALEXANDER MCALISTER.

Camden, N. J.

The year 1901 will long be remembered for the widespread prevalence of smallpox in this country. Excepting minor outbreaks in certain scattered centres, comparatively few cases had appeared prior to the close of the Spanish-American war for a period of more than twenty years. Vaccination was practised only where compulsory measures could be enforced, notably, as in our civic school system, and revaccination was only exceptionally requested or even deemed necessary.

The contagium brought to our shores by returning troops found the country ready for a general epidemic of smallpox. Only prompt resort to vaccination and revaccination was effective in averting a much more serious epidemic than that whose end we have not yet reached.

I have introduced these well-known facts because of their important bearing upon the subject of this paper. Twenty or more years of growing indifference to the value and practice of vaccination terminated in the most urgent demand for vaccination. Never before in the world's history were so many persons vaccinated in so short a period of time. Physicians who had seldom found occasion to vaccinate for many years of active practice suddenly found that vaccination consumed a large portion of their time.

Recent highly commendable progress in the preparation of vaccine material and the manner in which its advantages have been heralded alike to the profession and the public, served to raise illusive hopes. The remarkable proportion of "takes" and mild character of the sores furnished in the literature of vaccine makers essayed a guarantee not realized in practice. In spite of the most conscientious application of every approved precautionary measure in the technique, a fairly large proportion of arms inoculated developed intense sores and required from four to eight or ten weeks to heal completely.

In the many and varied comments which these facts elicited,

* Read before the New Jersey State Medical Society, at Atlantic City, June 25, 1902.

adverse criticisms were not infrequent and not a little censure was heaped upon the virus employed, or it may be upon the vaccinator.

Since every practitioner has had his own trials along this line during the past year, it gives me pleasure to present for your consideration a concise review of this interesting subject.

An examination of the literature from the days of Jenner shows that the practice of protective inoculation has always been attended by certain complications. To reduce these to the minimum the best talent in the profession has been engaged at all times in an effort to improve the virus as well as its commercial source.

These efforts have been fruitful of good results in many directions. In the substitution of bovine virus for human virus, the element of uncertain potency and actual danger was practically eliminated and the character of the possible complications very materially modified. This must be patent to every one who has taken pains to inquire into the matter. The great dangers to which children were once exposed in being vaccinated, are no longer within the range of possibility. This is evident when we recall that the children of a certain French village were once inoculated with syphilis in the days when only arm to arm vaccination was practised.

Certain grave complications which were once prevalent are no longer within the realms of probability. Indeed, the literature shows that in the past the complications were important and occasionally of a very serious nature; in comparison with which those of today are trivial, or at most only of minor significance. The experience of our older colleagues will bear out this statement.

The complications of the past, when human virus was employed, were syphilis, erysipelas, gangrene, abscess, phlegmon, septicemia, pyemia, thrombosis, phlebitis, etc. Those of today are quite generally local in effect. They are chiefly embraced under the general term "sore arm" and are complications, accurately speaking, of the essential local lesion. Certain more or less clearly defined types may be recognized in the incipiency of these sore arms, but all will agree that in the end the main distinction is chiefly that of a degree of inflammation and the resulting destruction of tissue.

It must be taken for granted that from the days of Jenner until now certain sources of complications have continuously ex-

isted. These sources are: 1. Impurity in the virus; 2. lack of skill in the vaccinator; 3. lack of proper care of the vaccine sore; 4. peculiar susceptibility of the vaccinated.

On the first of these Dr. Joseph McFarland writes as follows: "In spite of all the precautionary measures, it must be impossible to secure sterile pulp. Indeed, every vaccine contains three classes of microorganisms. 1. Those specific for vaccinia; 2. Those normally living upon the skin of animals and 3. Those accidentally entering from the dust of the stable. As a rule all these forms are harmless, but it is only those of the first class that are desirable." And, again, "The virus itself if not properly prepared, or perhaps occasionally through unavoidable accident, may contain infectious organisms. The most important of these are skin coccii which occasion severe local lesions, and the tetanus bacillus which has done considerable mischief of late."

It must be remembered in this connection that in every recent instance in which tetanus complicated vaccination the case was shown to have resulted from secondary infection of the vaccine lesion and not from germs introduced with the specific virus. We observe that the most fruitful source of excessively sore arms is the introduction of the skin coccii. These may be present in the virus employed, or enter the wound from the patient's person at the time of inoculation, or gain entrance into the sore as a secondary infection. Over the first source we have absolutely no control. Theoretically the glycerinized virus, if properly seasoned, is the purest virus to select, but it can never be guaranteed as sterile or even free from these comparative harmless skin coccii.

The second source of these coccii is fully within the control of the vaccinator. The site selected for the inoculation is easily cleansed with proper antiseptics or mechanically with sterile water and soap. In these days of antiseptic surgery we may presume that generally such precautions are taken as to render this source of sore arms practically nil. Should this presumption be in error, it yet remains a fact that there is no longer any reason why this source should be a factor in the production of sore arms unless there is not a proper conception of the character of the inoculation. This should always be regarded as primarily an operation, and as such, subject to the dangers of all such manipulations. To avoid suppuration, as well as all other complications of wounds, cleanliness must be insisted upon from first to last. In the absence of this conception of the vaccine wound, antiseptic precautions

generally end with the insertion of the virus, the careful placement of a shield not excepted. The most carefully shielded arms are, I believe, as a rule, the sorest. By the use of shields the conditions are made more favorable both for the reception and the growth of these cocci.

Unfortunately, after the insertion of the specific virus, with all due antiseptic precautions, the lesion is left exposed without a dressing to every source of secondary infection and the added invitation to dust, incidental to the patient's employment. The result is a large percentage of sore arms. And we wonder why so few of the sores are typical of uncomplicated vaccinia when the subject of our astonishment should be that many more do not have intensely sore arms.

When we take into consideration the essential traumatism, the character of the purest virus possible and the indifferent treatment which a vaccine wound receives during a period of about a fortnight is it not miraculous that so large a percentage of vaccinations run uneventful courses?

An operative wound is kept sterile from first to last. An accidental wound is rendered antiseptic as speedily as possible. In either case the wound is carefully treated and new dressings applied every few days. A vaccine wound is infected with specific germs of vaccinia and the patient sent away. Such wounds we see subsequently only when complications arise, or when a certificate of successful vaccination is the incentive to call. In the meantime, in addition to the causes already named, we have the patient's susceptibility to inflammatory lesions, invitation of harsh or filthy garments, the grave insults of the fingers of the patient, dust incidental to the place of employment, unhygienic home environments, wet or damp place of employment, etc., etc., as patent factors in causing or aggravating sore arms.

The remedy lies in using pure virus, an aseptic technique, and, finally, in treating the lesion as an important case in minor surgery.

The Medical Aspects of Septicemia.—Forchheimer reports 16 cases of septic trouble following scarlet fever. Out of these cases 7 were benefited by the unguentum Credé. The error that is made in employing the ointment is in not using enough of it.—*Cleveland Medical Journal.*

ARCHIVES OF PEDIATRICS.

DECEMBER, 1902.

EDITED BY

WALTER LESTER CARR, A.M., M.D.

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PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

TRACHOMA IN THE SCHOOLS.

In the past two months the daily press of New York has given a great deal of attention to the subject of trachoma, especially with reference to the management of the cases that are found among institution children and in those attending public schools.

Dr. Richard H. Derby, of the New York Eye and Ear Infirmary, has been active in presenting to the medical public the prevalence and danger of trachoma, and he has, with other well known specialists, been in conference with the Department of Health as to the best means of stamping out the disease. Since the beginning of the school year almost seven thousand children

have been excluded from school because of eye trouble, and a large proportion of this number suffered from trachoma. The eye infirmaries report an enormous increase in the attendance at the out-patient classes where hundreds are kept in line by the police as they await their turn.

Trachoma is unquestionably influenced by filth and while it is a disease that may have prevailed more largely than we had suspected, the recent activity of the school inspectors shows it to be present in New York City as an epidemic. The dirty condition of the streets and the use of soft coal have added to the number of cases of conjunctival inflammation. Trachoma is frequently found when a simple catarrhal process is suspected.

Children who suffer from this disease should be isolated, and if the disease is to be stamped out in crowded schools and tenements the children should be removed from their surroundings and kept segregated so that there should be no danger to healthy persons.

No so called radical treatment has met with general favor. Electrolysis, grattage, strong caustics, corrosive sublimate washes and jequirity bean have all been used with more or less success. The secret of the best results in the cases pronounced cured will depend upon the character of the infection, the amount of thickening of the palpebral structures and the general health of the child. It is observed that children who are situated in an airy well-ventilated room will be apparently cured only to relapse when sent to unhygienic homes or to institutions where the routine management of the eyes is perfunctory.

ARCHIVES OF PEDIATRICS FOR 1903.

During the year that is just closing ARCHIVES OF PEDIATRICS has furnished to its readers a large number of valuable, original papers. The proceedings of medical societies have been recorded with great care and have been revised before publication. All the abstracts have been made especially for this journal.

To the 1903 volume of ARCHIVES prominent authorities in pediatrics will contribute original articles.

The proceedings of the American Pediatric Society, the Pediatric Section of the New York Academy of Medicine, the Philadelphia Pediatric Society, the Society for the Study of Disease in Children, London, and of other medical bodies whose discussions are of interest to the specialist and to the medical profession in general, will be reported with accuracy.

The editor is to be assisted by Dr. David Bovaird, Jr., whose clinical and literary work in the department of pediatrics is well known.

On the Etiology of Barlow's Disease.—H. Neumann (*La Lemaine Medicale*, June 25, 1902) indicated to the Society of Internal Medicine of Berlin, June 16th, the result of his observations on 18 cases of Barlow's disease. He is unable to admit the pretended relation of this affection to rachitism. As regards the etiology of infantile scorbustus, Neumann agrees with Heubner that the use of milk which has been submitted to prolonged sterilization plays an important role. Of the 18 cases observed, 16 were fed on milk sterilized in industrial establishments and two on milk sterilized under good conditions. On an average the disease appeared within seven or eight months after the beginning of the alimentation.—*American Medicine*.

Mouth Breathing.—Ballenger says (*Annals of Otology, Rhinology and Laryngology*, August, 1902) the respiratory functions of the nose are to regulate the temperature, moisten and filter the inspired air, and in mouth-breathing this function is impaired. The lower air tract is incapable of furnishing the required moisture. The bronchi and vesicles become abnormal, and producing irritation cause certain pathologic changes, impairing their activity to absorb oxygen and throw off carbon dioxid. Deficient oxygenation of the blood results in the toxic products being thrown off into the circulation, and produces certain nervous phenomena and malnutrition. This leads to physical imperfection or malformation, and excessive accumulation of carbon dioxid in the blood impairs the function of the leukocytes and other cellular structures, which are unable to remove from the circulation the products of faulty metabolism, and thus the nervous phenomena are thereby increased. These conditions occur in children who are mouth-breathers whether it is due to adenoids or other forms of obstruction.—*Journal of the American Medical Association*.

Obituary Notice.

FREDERICK A. PACKARD, M.D.

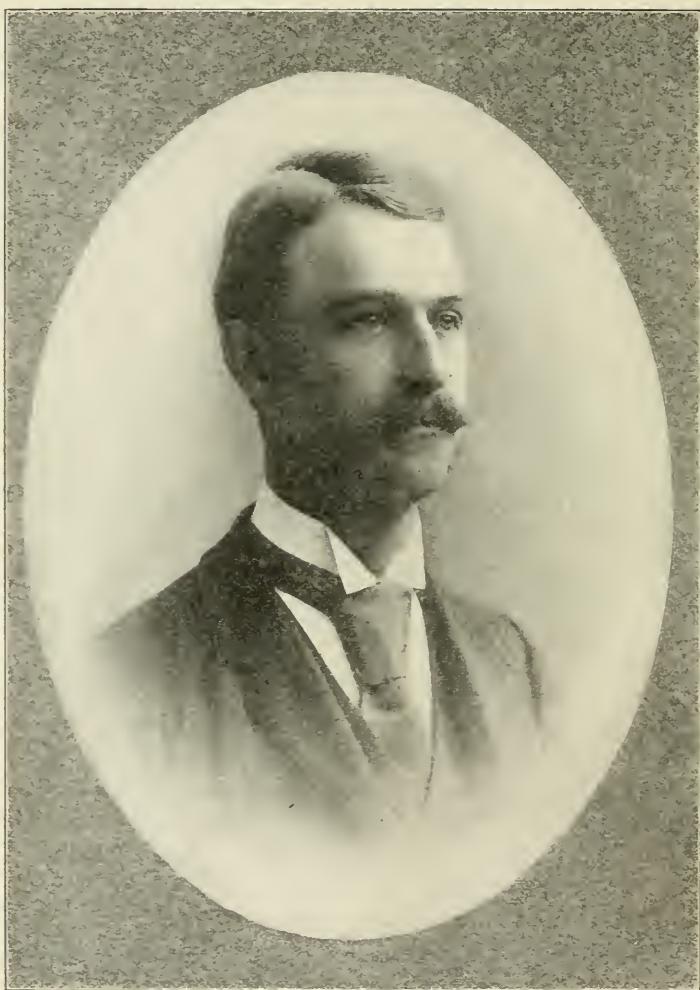
Dr. F. A. Packard of Philadelphia, who died on Saturday, November the first, nineteen hundred and two, from typhoid fever, was born in Philadelphia, November the seventeenth, eighteen hundred and sixty-two. He was graduated from the Department of Arts in the University of Pennsylvania in 1882, and from the Department of Medicine in 1885.

In the death of Dr. Packard the medical profession has lost one of its most able and highly regarded members. From the day that he began the study of medicine to the time of his final illness, his profession received his first and best thought. As a student he was earnest, painstaking, industrious, systematic, honest and ambitious. He was always on the alert and always receptive. From each of his teachers he aimed to obtain and appropriate the best that he had to offer. These characteristics made it comparatively easy for him to be graduated the leader of his class in medicine.

Into his hospital courses he carried this same earnestness of purpose, which enabled him to further broaden the foundation for his future career and to win the lasting admiration of his chiefs, as well as of the governing boards of the hospitals which he served.

As a young practitioner he early became associated with the out-patient departments of the Episcopal, Children's and Pennsylvania Hospitals. At a later period he served as visiting physician to each of these institutions as well as to the Philadelphia Hospital and the Home for Incurables. It was not for the glory that such appointments bring that he accepted and retained them, but for the purpose of obtaining the experience and instruction which they offered and the opportunity they gave of being useful to the suffering poor. As time advanced and his growing practice made it impossible for him to continue faithful to all of his appointments, he gradually relinquished them, until, at the time of his death he held but two—the Pennsylvania and Children's Hospitals. In the service of these institutions it was his intention to continue faithful at any sacrifice.

For a number of years he was identified with the teaching staff of the Medical Department of the University of Pennsylvania. In this capacity, as well as that of Hospital Chief, his influence for good upon the student and hospital interne was more far reaching than that of any man of his time. He possessed to a marvellous degree that quality which is so rare, and yet so essential in the successful teacher, namely: the power to stimulate men to earnest,



FREDERICK A. PACKARD, M.D.

conscientious work. The love and respect which the student body evinced for the man was little short of marvellous. The hospital resident looked to him as the one above all others from whom he was sure to receive the help and stimulus that he needed. Dr. Packard considered it a privilege as well as a duty to faithfully and earnestly instruct those who looked to him for guidance.

As a writer in medicine he was versatile, sound, scientific, thoughtful and original. His contributions have been many and are too familiar to the medical public to need repetition. His writings in relation to pediatrics have been especially meritorious. He was a collaborator of ARCHIVES OF PEDIATRICS and was always ready to advance its interests.

He was an active and conspicuous member of all the learned medical societies in Philadelphia, as well as of the Association of American Physicians and the American Pediatric Society. He was one of the most active members of the College of Physicians of Philadelphia, and from time to time, filled many of its most important offices. He served as President of the Philadelphia Pathological and Pediatric Societies and at the time of his death was a member of the Council of the American Pediatric Society.

In recognition of his ability as a broad-minded, public-spirited citizen, he was appointed a trustee of the University of Pennsylvania in the year 1900—an appointment which proved one of the most popular in recent years. He had the unbounded confidence of everyone who knew him and to him the alumni of this institution looked as one well calculated to contribute largely to the present progressive policy of their *alma mater*.

Greater men have lived and men of wider reputation, but none truer and none more lovable. No better testimony to this statement can be offered than the universal esteem with which he was regarded by everyone who knew him and the remarkable, widespread mourning which has followed his death. It is safe to say that the death of no other man in the medical profession of Philadelphia has ever caused as widespread, honest sorrow. He never bid for popularity; his character demanded respect. He was honest above all things, charitable to a fault and fair to every man. He judged no man carelessly or dishonestly, he recognized the good in men and was always ready to defend the weak. That a man of such character should be loved in his life and mourned at his death is no marvel. The world is better that he lived in it.

[REDACTED]

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Über die Behandlung der Kinderkrankheiten. Briefe an Einen Jungen Arzt, von Dr. Med. H. Neumann. Private-Docent an der Universität Berlin. Dritte Durchgesehene und Erweiterete Auflage. Verlag von Oscar Coblenz, Berlin. W. 35, 1903. pp. 452.

This book differs from the usual text-books as it is written in the form of letters, each letter taking the form of a chapter. The style is clear, pleasant and not didactic. The entire work is eminently practical, being limited, as the title implies, to the treatment of children's diseases; symptomatology, pathology and etiology are only briefly touched upon.

The general part includes an excellent introduction on the attitude of the physician in the nursery, the dangers of superfluous treatment and the necessity for simple prescriptions. The letter on infant feeding is good. It is quite true that the young physician "will often find it impossible to prevent the mother" from putting a rubber nipple into the infant's mouth between meals, but it is to be regretted that the writer should find it "sometimes difficult to do without it in the case of screaming or sucking infants," and that he tells his correspondent that "some of these nipples are for sale, and are very effectual in their way."

Hydrotherapy is given a prominent place throughout the book. The special part includes the diseases of the newly-born; dentition; rachitis; gastrointestinal diseases; infectious diseases (under which head pneumonia is classified); chronic diseases including tuberculosis and syphilis, anemia; skin diseases and nervous diseases. A pharmaceutical index is appended in which the various drugs mentioned in the text are detailed, with the doses suitable for various ages and the condition for which they are prescribed.

The print is excellent. There are no illustrations.

Manual of Antenatal Pathology and Hygiene. The Fetus.
By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S., Edinburgh.
Lectures on Midwifery and Gynecology, Medical College for
Women, Edinburgh. Lecturer on Antenatal Pathology and
Teratology in the University of Edinburgh (1900), etc. Illus-
trated. Pp. xvi., 528. Edinburgh: Wm. Green & Sons, 1902.
Price, 20s.

Dr. Ballantyne has found his subject so extensive that the present volume treats only of the fetus, leaving teratology and

morbid heredity to be dealt with in a later book. The work comes as a surprise that so much that is of interest and importance can be written relating to the physiology and pathology of the fetus.

The author of this extensive manual has gained for himself a worldwide reputation in this department of medical science and his name is familiar to our readers.

Dr. Ballantyne has made excellent use of the material from his clinical experience and he has gone over the literature of his subject in a manner that shows his ability to glean from the opportunities of other observers.

The first part of the volume comprises six chapters and deals largely with the relationship between antenatal and postnatal pathology. Book II., is the larger part of the manual. There are twenty-one chapters on the pathology and hygiene of the fetus. Considerable space is given to the anatomy of the fetus. The physiology and pathology are studied as preliminary to a survey of transmitted diseases and toxic conditions. There are chapters on therapeutics and hygiene, with views on the diagnosis of morbid states requiring attention.

The book is well illustrated, and with the numerous references to the writings of the author and other contributors to this little understood branch of medical science, it would seem that some light should be shed that will result in strengthening generations yet unborn. A study of the volume will help to a better appreciation of the morbid influences that affect the fetus and open suggestive lines of thought to the careful observer.

Mother and Child. By Edward P. Davis, A.M., M.D. Professor of Obstetrics in the Jefferson Medical College, etc. Philadelphia: J. B. Lippincott Company, 1902. Illustrated. Pp. 264. Price, \$1.50.

This is the second edition of Dr. Davis' book. It is not intended to supply prescriptions for medicines nor to take the place of the family physician. As such it is one of the best of the many books for young mothers.

Society Reports.

SEVENTIETH ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.—SECTION OF DISEASES OF CHILDREN.

Manchester, July 29, 30, 31 and August 1, 1902.

HENRY ASHBY, M.D., F. R. C. P. (London), PRESIDENT.

THE SURGERY OF THOSE AFFECTIONS OF THE CENTRAL NERVOUS
SYSTEM WHICH OCCUR MORE ESPECIALLY IN CHILDREN

the subject for discussion, was introduced by

HAROLD J. STILES, M.B., F.R.C.S., EDINBURG.

Spina Bifida.—Dealing first with spina bifida Mr. Stiles expressed the opinion that the treatment of this condition is now on the same rational footing as that of herniæ elsewhere, excision of the sac taking the place of all other methods. Simple tapping, he thought, could only be of value as a palliative measure when the tumor is tense and ulcerated, and should never be resorted to as a curative procedure, whilst the injection of Morton's fluid (the only treatment worth considering apart from excision) he considered to be least dangerous in just those cases where excision is almost uniformly successful. The mortality after excision would seem to be about 25 per cent., for Mayo Robson had five deaths out of 20 cases operated on, and Hildebrand who collected 87 cases of excision found sixty-four recoveries, and twenty-three deaths.

He then considered the factors which should influence us in selecting or rejecting cases for operation. Concerning the anatomical variety of the tumor, though De Ruyter concluded that excision should only be undertaken in meningoceles, he thinks experience has shown that myelocystoceles, myelocystomeningoceles, and the majority of myelomeningoceles may also be successfully dealt with by that method. On the other hand holding the view that congenital hydrocephalus is incurable, he believes that its coexistence with spina bifida constitutes a definite contraindication to operation. If paralysis be present when it is due to imperfect development of the nervous elements, it cannot be expected that operation will have any beneficial effect upon it. Mr. Nicoll, however, having had some cases in which it gradually disappeared after operation, it is evident that in some instances the paralysis is simply due to tension of the nervous elements. In association then with this complication Mr. Stiles would personally be inclined to operate when the paralysis is partial, and to reject those

cases in which it is complete as regards the lower extremities and sphincters, more particularly if talipes exists as well. Operation is also contraindicated when the base of the tumor is so large, and the skin over it so thin that it is impossible to get a sufficiently sound skin to close the wound. Further, except where the tumor is enlarging rapidly and is threatening to ulcerate or perforate, it should be delayed until the child is a few months old. With the addition of some details for the preservation of nerve structures when present in the sac, the operation for excision of spina bifida is practically that originally introduced by Mr. Mayo Robson.

The following points were specially mentioned by Mr. Stiles as contributing towards the success of the operation: 1. The administration of a saline and brandy enema shortly before operation to lessen shock, and elevation of the pelvis to prevent further escape of cerebrospinal fluid after the sac has once been emptied. 2. The use of an elliptical incision in the long axis of the spine where the base of the tumor is broad, and the flaps may have to be extensively undercut. 3. Keeping close to the thickened arachnoid when dissecting the flaps from the base of the tumor, separation being effected by a blunt instrument. 4. Opening the sac before excision to see if it contains nerve structures. 5. Preservation of the cord and nerve roots when present in the sac. 6. Eversion of the skin flaps over the cleft when suturing, so as to bring not only the edges but a considerable area of the deep surfaces in contact. (By this means not only is a firmer cicatrix obtained but there is a diminished chance of escape of cerebrospinal fluid.) 7. The use of a collodion or dry aseptic dressing, the child for the first few days being kept in the prone position with the pelvis elevated.

Various methods have been employed to obtain a firmer closure of the deficiency in the spine, but according to Mr. Stiles the only one which is worthy of consideration is that of Bayer, who dissects up from the erector spinae muscles, two flaps which are folded towards the middle line, and so sutured that their aponeurotic surfaces are directed towards the spine.

Cranial Meningocele.—As regards cranial meningoceles, and encephaloceles he recommends that they should be treated on the same principle as in excising spina bifida. A small cephalocele projecting into the sac may often be reduced, but if large and irreducible it must be ligatured and removed. Contrary, however, to the practice in spina bifida, it is desirable to cover over the

osseous defect in the skull with a pedunculated flap consisting of pericranium, and a thin layer of the subjacent osseus tissue derived from the adjacent bone. From the cases reported it is evident that the immediate danger attending the removal of the tumors is not great, though as Mr. Stiles says, except in the case of simple meningoceles, and some frontal hydrencephaloceles the ultimate prognosis is anything but encouraging.

Internal Hydrocephalus.—Turning then to congenital internal hydrocephalus the numerous devices suggested for the cure of this distressing affection were recounted, as well as an account given of a method which Mr. Stiles has himself tried to establish, indirectly a drain between the ventricles and the peritoneal cavity by passing under the erector spinae muscle. Personally, however, he does not think we can hope for any permanent benefit from surgical interference, for after careful dissections he failed to discover that the affection was in any way inflammatory, all the evidence pointing to its being due to an arrest of development. Further, since the aqueduct of Sylvius, the fourth ventricle, and the foramina in the pia covering it are all dilated, it would appear that the accumulation of cerebrospinal fluid in hydrocephalus is due to hypersecretion rather than to defective absorption to which the above mentioned attempts at alleviation are directed. In microcephalus Mr. Stiles referred to the operation of linear craniectomy recommended by Lannelongue in 1890, on the supposition that the accompanying idiocy is due to arrest of development of the brain secondary to premature synostosis of the sutures. Microcephalus, however, may be associated with a variety of morbid conditions either of the brain or its membranes; and even in the rare instances in which it is accompanied by premature synostosis, the evidence, as Bourneville has shown, points strongly in favor of the arrest of development of the brain being the primary condition. In a case of his own, a child two years and three months, Mr. Stiles failed to observe any improvement from the operation, and as the results recorded by other surgeons seem to have been all negative he agrees with Piltz that the operation is founded on false suppositions, and on an insufficient knowledge of the pathological anatomy of hydrocephalus.

Tuberculous Meningitis.—As regards tuberculous meningitis Mr. Stiles believes it is doubtful if an actual cure has ever been obtained from any of the devices recommended in this condition, and expresses the opinion that where the diagnosis is certain operation is not advisable, though if any doubt exists it should be

performed since it may be the means of saving the patient should a cerebral lesion be present which is nontuberculous.

Basal Meningitis.—Speaking of nontuberculous posterior basal meningitis, it was in the first place pointed out that in many cases recovery occurs under medical treatment alone. In Mr. Stiles' opinion this fact is rather in favor of surgical interference than against it, provided that such interference (*e. g.*, lumbar puncture) is, *per se*, free from danger. Where the inflammatory exudation becomes progressively more turbid, or is actually purulent, he recommends that, following the procedure successfully carried out by Rolleston and Allingham in a case of sporadic cerebrospinal fever in an adult, drainage should be established by incising the dura after removing the spines and laminæ of the seventh or eighth dorsal vertebrae. In connection with lumbar puncture Mr. Stiles also recommends that puncture of the lateral ventricles should be resorted to systematically, and at an early stage of the disease, since if the drainage route between the lateral ventricles and the subarachnoid space of the cord be blocked, then the former alone can have no effect upon the ventricles. As regards drainage of the fourth ventricle through a trephined opening immediately above or to one side of the foramen magnum, though he has had temporary improvement in 2 cases, he confesses he is not inclined to recommend the operation.

Paraplegia in Pott's Disease.—Turning finally to paraplegia in Pott's disease he laid special emphasis from the point of view or prophylaxis on early diagnosis, and prolonged rest in the recumbent posture. Where paraplegia already exists, but is of recent origin, elastic or weight extension is to be superadded. The precise nature of further surgical interference depends upon the cause, thus a deep seated abscess calls for immediate evacuation, which may be followed by rapid improvement in the paralysis. In the dorsal region, however, abscesses are often associated with disease of the vertebral arches, and in these cases laminectomy is indicated. The same operation is to be done for sudden paraplegia due to backward displacement of a tuberculous sequestrum. It is, however, harmful when the paraplegia is due to fracture of carious vertebrae, so that since the two forms are indistinguishable, it is fortunate as Mr. Stiles says that both conditions are exceedingly rare. With the gradual development of paraplegia fixation with or without extension must be given a fair trial before resorting to laminectomy. Where the paralysis is due to pachymeningitis, incision of the thickened membranes is

the only remedy, but the prognosis is bad. In conclusion Mr. Stiles referred very briefly to the modern treatment by forcible extension introduced by Calot, and though he has had no personal experience with it yet from a careful perusal of the literature he has been unable to alter the unfavorable opinion he originally formed regarding it.

MR. WM. THELWALL THOMAS spoke of the protective power of collodion in some cases of spina bifida, applied twice a day.

MR. ROBERT CRAIG DUN referred to the great danger in the use of antiseptic which in very weak solutions when introduced directly into the spinal canal were, he believed, rapidly toxic. He was also of the same opinion as Mr. Stiles that in nontuberculous meningitis drainage of the subarachnoid space or ventricles offered more likelihood of success than in the tuberculous form, but he preferred to open the skull at a point one inch above the external auditory meatus rather than in the occipital region. In hydrocephalus he thought that improvement occurred so long as a free drain existed between the subarachnoid space and the lateral ventricles. In the tubes he had used hitherto, blocking had in each case occurred in a comparatively short time, and it was his intention in future cases to try a knitted chronic catgut tube.

MR. W. P. MONTGOMERY thought that more was to be expected from the meningoperitoneal method of drainage in congenital hydrocephalus.

MR. NOBLE SMITH recommended the use of a special splint to secure immobility of the parts when treating Pott's disease by rest in the recumbent posture.

PROFESSOR CHIENE supported the recumbent position for acute cases and directed attention to the various positions in which the patient must lie, according to the parts affected, in order to obtain the best extension.

MR. J. COLLIER spoke of the advisability, in cases of tuberculous spinal caries, where a caseating focus was present in the bodies of the vertebrae and was pressing the cord by flattening the canal, of removing this focus by a route which did not traverse the canal itself. By this means the danger of subsequent recurrence of compression of the cord through the formation of cicatricial tissue in the vertebral canal was averted.

MR. STILES in closing, thought that Mr. Dun's idea of a knitted chronic catgut drainage tube was a good one, but believed more benefit might be expected from the method in acquired as opposed to congenital hydrocephalus.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, October 14, 1902.

DR. SAMUEL MCCLINTOCK HAMILL, PRESIDENT.

DR. EDSALL reported a case of

TUBERCULOUS MENINGITIS WITHOUT FOCAL SYMPTOMS,

which occurred in a boy about ten years of age admitted to his service at St. Christopher's Hospital for Children. The history (which, after the child's death, was proved to have been incorrect) stated that the child had, four or five days before, been taken suddenly ill with stupor, soon followed by coma. No other facts could be obtained.

When admitted, the boy was in moderately deep coma, was constantly having tetaniform convulsions, and had a temperature of 104° F. No foci of tuberculosis could be discovered. The urine was normal. By lumbar puncture, about 10 c.c. of fluid was obtained; this was clear, no fibrin-thread formed on standing, and no tubercle bacilli could be found after centrifugation; there was, however, a moderate number of mononuclear cells in the fluid. The child showed no ocular paralysis, except partial paralytic dilatation of the pupils. Other paralyses were absent. Kernig's sign was absent, and there was no retraction of the head or rigidity of the neck. The boy had a moderate degree of hydrocephalus.

The diagnosis made was tuberculous meningitis, although there was serious consideration of acute internal hydrocephalus of the toxic variety. The child died three days after admission, and an acute miliary tuberculosis was found, originating from a small focus in the upper lobe of the left lung. There was tuberculous meningitis. So far as could be determined macroscopically, this was confined to the anterior half of the medulla, the pons, and the immediately adjacent parts of the cerebra and cerebrum. There was an old hydrocephalus, with marked thickening of the appendyma and dilatation of all the ventricles, the foramina of communication between the fourth ventricle and the external cerebrospinal space being closed.

The absence of rigidity of the neck was one of the frequent examples of the fact that this symptom is a very irregular one in

tuberculous meningitis, while the absence of Kernig's sign is further testimony that this sign also is extremely inconstant in that disease, and it is apparently a sign upon which too much stress has been laid. Although usually present in nontuberculous meningitis, it is frequently absent in tuberculous meningitis, and is occasionally present in other conditions resembling meningitis. Dr. Edsall also noted a case in an adult, in which a unilateral Kernig's sign occurred in cerebral syphilis with hemiplegia, the latter probably being due to thrombosis.

The difficulty in the diagnosis between meningitis and acute toxic internal hydrocephalus in such cases was referred to, as well as the occasional difficulty in distinguishing between tuberculous meningitis and septicemia, and a case was mentioned in which the diagnosis of meningitis was made by several distinguished clinicians, but which proved to be a streptococcus septicemia set up by a small patch of pseudomembranous streptococcic infection of the uterus in a puerperal woman.

DR. J. P. CROZER GRIFFITH said that he was constantly being more impressed with the irregularity of the symptoms of tuberculous meningitis. In his experience, great retraction of the head was undoubtedly absent in the majority of cases. The neck is, however, generally more or less rigid; although this is not, perhaps, discovered until an effort is made to flex it. One sees all varieties of cases of tuberculous meningitis. One of the most extreme instances of retraction of the head with opisthotonus in Dr. Griffith's experience was a case of tuberculous meningitis, which, for some time, resembled tetanus very closely. In fact, the diagnosis had been in doubt until a lumbar puncture proved the presence of tubercle bacilli.

DR. A. H. DAVIDSON and DR. D. J. McCARTHY reported the

POSTMORTEM CONDITIONS IN A CASE OF PARAPLEGIA

previously exhibited to the Society.

There was, at birth, a complete flaccid motor paralysis, from the chest down. Sensation was lost up to the level of the second dorsal spinal segment. There was incontinence of urine; also constipation, remedied by enemata. The diagnosis at that time favored hemorrhage into the spinal cord at the second lumbar segment. At autopsy, there was complete collapse of the cord from the second to the tenth dorsal segment. The cervical and

lumbar enlargements were both normal on cross examination, and contained ganglion cells in the usual position and number. The dorsal collapsed cord, which was perfectly flat, contained no ganglion cells; merely a detritus of degenerated nerve-material and free blood. A complete examination as to the cause of the hemorrhagic degeneration could not be carried out, on account of the accidental partial hardening of the cord while it was being photographed.

DR. ESHNER asked whether there was any evidence of hemorrhage into other organs than the spinal cord. The description of the lesions had made him think that hemorrhage resulting from traction during the birth of the child was a ready explanation of the condition. He recalled cases that had been recorded, in which difficulty in parturition had resulted in hemorrhage in many organs. Had such hemorrhage been found in this case, the probability that the traction had been the actual cause of the condition would have been increased.

DR. WESTCOTT read a brief note, offering

A SUGGESTION FOR SECURING GREATER CLEARNESS IN THE
DESIGNATION OF MILK-DILUTIONS.

Such expressions as "diluted one-half," "diluted one-third," "a dilution of one to two or three," "twice diluted," or "thrice diluted," are equivocal; or, at least, indirect, even if understood by all in the same sense. Our methods of infant feeding deal almost entirely with dilutions of milk, and often demand a ready mental calculation of percentage proportions in which the important factors are the quantity of milk or cream and the total quantity of mixture. The latter quantity is the sum of milk or cream plus diluent. The quantity of the latter is, however, an important part of the mixture, taking the place of q.s. in an ordinary drug prescription. Perfect clearness is secured if the quantities of milk and total mixture alone are referred to; and thus, by the use of the preposition "in," the fraction of dilution is at once shown. We may, therefore, speak of a dilution of milk "one in three," in which the percentages of milk-solids are at once indicated to be one-third of those of the milk used. "Two in five" indicates two parts of milk and three of water, or five of mixture; and the fraction "two-fifths" at once indicates the percentage formula. By the adoption of this plan of referring to milk-dilutions,

perfect clearness of expression and directness of mental calculation can be secured.

DR. HAND agreed with Dr. Westcott as to the importance of this subject. He said that he had often noticed, in conversing with doctors, the indefiniteness of their statements with regard to infant-feeding. He had often heard the report, "This child did well (or badly) on laboratory-milk or on peptogenic milk-powder," which, of course, conveys nothing as to what strength of nourishment the child was really receiving.

THE PRESIDENT said that in papers concerning infant-feeding he had constantly met with the difficulty referred to by Dr. Westcott, and that he had often found it hard to understand what the writer meant by the expression he used. He believed that Dr. Westcott's suggestion would be an extremely useful one, and would lead to much greater clearness in the writings concerning infant feeding.

DR. J. H. MCKEE exhibited a specimen of

CEREBELLAR TUMOR IN AN INFANT OF TWENTY-ONE MONTHS.

The condition had not been suspected during life, and the ante-mortem diagnosis was marasmus and meningitis. A critical review of the case in retrospect, revealed that there had been cephalgia, insomnia, change in disposition, and vertigo; and that the convulsions had been unilateral. The autopsy revealed tuberculous bronchopneumonia, recent pleural adhesions, cheesy bronchial lymph nodes, enlarged mesenteric glands, giant tubercles in the liver, and a large tyroma of the right cerebellar hemisphere and meninges.

A SPECIMEN OF CONGENITAL CARDIAC DISEASE.

A specimen of congenital cardiac disease was shown from a patient in whose case a diagnosis had been made during life of pulmonary stenosis, deficient septum ventriculorum, and patent ductus arteriosus. The necropsy showed, in addition to the conditions diagnosed, a slightly patent foramen ovale and an adventitious communication between the right ventricle and the aorta.

INTUBATION AT A VERY EARLY AGE.

The case was one of great obscurity, revealing only edema of the lungs at autopsy. It was thought to be one of infanticide, as

there were superficial abrasions upon the neck. The symptoms were those of pressure upon the upper air-passages. For the relief of this, intubation was done when the baby was less than twenty-four hours old. For about eighteen hours, the dyspnea was much relieved; but the infant then died suddenly.

A PROBABLE CASE OF DUODENAL ATRESIA.

The baby was a premature infant aged three days, when, through the courtesy of Dr. Helen Kirschbaum, he was seen. He had vomited since birth, and the vomited matter was bile-stained. He had had no stools until given an enema, the day before, when some material resembling soap was removed from the bowel. This was evidently inspissated mucus. It did not show any evidence of presence of the normal biliary pigments. A physical examination revealed only a vertical stomach, and at its lower edge, what felt like a thickened cord. Spasmodic stricture of the esophagus was thought of, but the frequency of bilious vomiting rather precluded that diagnosis. The baby was practically moribund and soon died. An autopsy could not be procured.

Results of the Crede Treatment of the Newborn.—A recent writer declared that in Munich 34 infants out of 962 suffered from blenorhea, despite the treatment of the eyes at birth, according to the method of Credé. E. Runge (*Berlin klin. Woch.*, May 19, 1902) compares these figures with statistics which he collected at Göttingen during the past five years. One thousand newborn children were treated. Not one had an early infection of the eyes, and in only a single case was there a later infection, occurring at the beginning of the second week. Even in this case the infection ran a rapid and mild course; the inflammatory process disappeared in forty-eight hours. Including figures collected at Göttingen by Schallehn during a previous period, Runge is able to report 1,917 cases without a single early infection. On two separate occasions groups of pregnant women were examined at the Göttingen clinic for gonorrhea. Of the first group, 25 per cent. were found to have infections; of the second group 20 per cent. were gonorrhoeic; hence the opportunities for infection of the newborn were frequent enough. Runge regards the effectiveness of the Credé procedure as unquestionable. A 2 per cent. silver-nitrate solution does occasionally produce a mild conjunctivitis. A 1 per cent. solution has not this disadvantage and is just as successful a disinfectant as the stronger solution.—*Medical News.*

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.
—A PRELIMINARY REPORT OF THE MILK
COMMISSION.*

BY E. H. BARTLEY, M.D., CHAIRMAN.

MR. PRESIDENT.—The Milk Commission of the Medical Society of the County of Kings was organized about the first of March of the present year. Six members were appointed, with authority to add to their number representatives of the other medical societies of the Borough of Brooklyn. On the invitation of the committee the following societies elected representatives: The Kings County Medical Association, The Brooklyn Medical Society, The Long Island Medical Society, The Associated Physicians of Long Island. These four representatives with the six from the County Medical Society constitute the Commission.

The Milk Commission of this Society, as you know, has been in operation during the past summer, and we feel at this time it is advisable to make a preliminary report as to what we have done and the success with which we have met. The amount of work done has, apparently, been out of proportion to the results, because the work has been largely preliminary. It has included about 350 bacteriological examinations and about 250 chemical analyses of milk. This included visits to the country, inspections of dairies and a great deal of correspondence, etc. For this we have some results, which I shall mention a little later. One other object of making the report is to inform the Society as to where milk that is served under the seal of this Commission, can be obtained. We had a meeting in this building, at which about fifty milkmen were present, and as a result of this conference, there were three or four who signified their intention of attempting to furnish certified milk. There are now four of these milk dealers furnishing the certified milk and the fifth one is nearly ready, and probably within the next two weeks will be serving this milk.

The standards adopted by the Commission are as follows:

1. That the milk shall contain 4 per cent. of butter fat. This we found to be well within the limits of possibility, and we really

* Read before the Medical Society of the County of Kings, October 21, 1902.

find milk running much above this. If we should make a low standard, some dairies would furnish a milk very much above our low standard, while others would simply furnish milk meeting the standard; the result would be a very great lack of uniformity in the composition of the milk, and uniformity we regard as a very desirable thing. If we furnish milk of 4 per cent. or within $\frac{1}{10}$ either way of 4 per cent. of butter fat, and this milk be used for modification, we can depend upon the percentage of fat it contains. In this certified milk we find that the percentage of fat runs pretty close to 4 per cent. We rather encourage the milkmen to maintain it at about 4 per cent. The object of this in infant feeding will be seen at a glance.

2. The acidity shall not be more than $\frac{2}{10}$ of 1 per cent.

3. The bacterial count is the point upon which great stress is laid, because it is the bacteria which sour the milk and cause the changes in it which finally lead to the sickness and death of the infant; and if it were possible to devote a little time to the subject, it would be very interesting to state the bacterial count of market milk and of the different grades of market milk, and compare it with the milk that is being served under our supervision. The bacterial count we adopt is 30,000 to the c.c. It may seem that this is a large number, but when we consider that the average milk served in cans contains from 1,000,000 to 10,000,000 per c.c., it is quite low.

4. We insist upon the dairies being inspected by a qualified veterinarian, who shall certify to us that the herd is free from tuberculosis, and that the cows are otherwise healthy; requiring a tuberculin test where there is any doubt. We supervise the feeding, the milking, the cleanliness of the premises, the ventilation, etc. These are described in a circular which has been distributed, and which prescribes the conditions under which the milk will be certified.

Some clinical results have been obtained with certified milk, which justify us in the statement, that we believe that a large number of lives of children will be saved by the introduction of this milk. Of course the Commission do not expect or intend to supervise the general milk supply of the city—only of those milkmen who apply to us for our certificate.

Bad milk can, by no process known, be made good milk. When milk is once spoiled it is like a piece of spoiled meat. Pasteurization and sterilization are merely methods for preserving milk. They always injure the milk; and in support of that state-

ment, and to impress upon you the importance of pure raw milk, I will quote some of the figures collected by the American Pediatric Association in 1896, in the investigation upon the subject of scorbatus, which is perhaps one of the best indices of infantile nutrition. They collected the histories of 379 cases. Of these 379 cases, 10 were fed exclusively on breast milk, 2 had the breast with a little additional food. Of these 379 cases 5 only were fed upon raw cow's milk. So far as these 379 cases go, raw cow's milk furnished less cases than by nursing the mother's breast. Pasteurized milk furnished 20 cases; condensed milk, 60 cases; sterilized milk, 107 cases and proprietary infant foods, 214 cases. The whole number foots up more than 379, because some of them overlap; *i.e.*, some of them were fed upon sterilized milk and perhaps some proprietary food in addition. The difference between raw cow's milk furnishing 5 cases, sterilized milk, 107 cases, condensed milk furnishing 60 cases, pasteurized milk, 20 cases and of breast milk furnishing 10 cases, is very marked.

Bacteria.—The average number of bacteria in cow's milk served from cans is about 100,000 to 10,000,000 per c.c. The bottle milk from the very best dairies served in the ordinary way contains from 10,000 to 50,000 per c.c. The average bottle milk of the market, taken without any special precautions, from the good dairies contains 100,000 to 150,000. Certified milk from 1,000 to 15,000. The limit adopted in New York and Brooklyn is 30,000. It is 10,000 in Philadelphia, where they obtain their milk nearer the city.

During the past summer we have been trying this milk for some babies, and 2 cases illustrate very well the effect of this low bacterial count. One of these cases was in an institution, the other outside. Both were given the milk of one of our dairies, and from some conditions that we were unable at first to find, the bacterial count started up in the latter part of September. It ran up to about 100,000, and simultaneously with this increase in the bacterial count both of these children became ill. Later, we found out the difficulty and succeeded in reducing the bacterial count and both the children soon recovered. Now other cases of this kind might be multiplied—it is not necessary. This is simply mentioned here to show the importance of this low bacterial count. We expect to present some very interesting statistics in our final report, which would be out of place in this preliminary note.

The effects of rapid cooling are so great that we impress it

very strongly upon the milkmen, and we hope that the campaign of education which we are conducting will in a very short time result in all milkmen having an ice house to preserve their milk in cold storage from the time it leaves the dairy until it reaches the consumer.

The growth of bacteria at 40° or 45° F., which is a safe distance above the freezing point, is practically nil, *i.e.*, a milk can be kept twenty-four hours at that temperature with very little bacterial growth; whereas if kept at room temperature for twenty-four hours the bacterial count increases about 435 fold: *i.e.*, each bacterium increases about 435 times in that time.

The milk is first collected under the directions we give, and it is then iced and kept at about 45° F. It is on the ice within an hour from the time it is milked, and it is kept at as low a temperature as possible until it reaches the consumer. After that it is at the mercy of the servant girl, the mistress of the house, or whosoever takes charge of it. The Commission issues a circular to all consumers, in which the fact is clearly stated that the responsibility of the Commission and of the milkmen ceases when the milk is delivered. This is a matter that physicians should all appreciate and look after occasionally where this milk is employed.

We have had some call for certified cream. We have not undertaken to certify cream for the reason that experiments show, that very many more bacteria are found in cream than in the milk which it leaves; in fact the cream takes out a very large portion of the bacteria from the milk, so that we can only advise on that subject: that if certified cream is desired, it must be obtained by skimming the cream from the bottle of certified milk.

In this connection I wish to correct an impression, which seems to be quite general among the public, and I have heard it not infrequently among physicians. It is a desire to have a thick heavy cream, with the idea that thick cream contains more fat than the thin cream. Last summer I learned while on a tour of inspection, that one dealer had 90,000 cans of cream in cold storage. It was a thick cream—but sour. This thick cream of the markets should never be given to infants. It is the one thing radically wrong in cream mixtures. Several years ago I discarded absolutely all cream mixtures made with commercial cream. I could find no cream in the market that would not show a decided acid reaction to litmus paper; and the bacterial count is very high,

The Method of Bottling.—This we regard as a matter of considerable importance. We have expended a good deal of time and energy upon devising a method, by which we could safeguard our label. We were especially anxious that our label could not be used except under the authority of the Commission.

We finally adopted the plan which I show you. The label is stamped upon the little round card, which we require to be put into every bottle.

We adopted the common sense bottle, and this card with the stamp of the Commission upon it is placed in the bottle, and then upon it before it is issued, we stamp a date about ten days or two weeks in advance—"This label expires November 1st." After November 1st, if the housekeeper is at all careful, she will notice that that label has expired, and if the milkman uses the label after that date, it is the business of the housekeeper to call him to account. Before the date of expiration, we examine a sample of the milk, and if we find it below standard, we hold back these labels until the milkman gets it up to the mark. Of course, we use discretion in this matter. We give a little latitude; we could not stop the supply suddenly. Every two weeks we take samples and examine the milk. That is why we have such a large number of analyses to make. About 10,000 of these labels have already been issued. These represent about 10,000 quarts of milk.

The label is placed with the printed side up. The directions for putting up the milk are furnished in a little circular, which is given out with the labels. Of course the milkman comes to the laboratory for the labels, and he pays the actual cost for them. The little circular is given out telling him how the Commission desires him to put up the milk. These labels are paraffined and delivered to the milkman, sterile, in a little packet. Upon this label is to be placed another label bearing the date of the bottled milk. This is turned upside down. Then paraffin is melted and poured over the two labels, so that they are firmly held in place and it is made air tight. The only way to remove that label is to destroy it. When it is removed the label is pierced, and there is no such thing as using it again. If a bottle of this milk comes to your house, and you find the date two or three days back, you are warranted in rejecting it. This will inform you as to the age of the milk. Of course, the milk will keep under proper precautions in the ice box forty-eight hours or even longer, but we recommend that it be secured and used each day.

At our meeting with the milkmen we promised that if they

would undertake to deliver this milk, and do it conscientiously, we would ask the medical profession to support them in it. They have undertaken this not as a means of making money, because many of them started it with ten, fifteen or twenty quarts a day, using more ice and spending more time and trouble than the extra money that they could get out of it would pay for. The first dairyman is delivering about eighty quarts a day, at the present time and others, who have not been so long at it, are delivering less.

The first one to serve this milk under the supervision of this Commission was Mr. H. S. Chardavoyne of 406 Court Street, corner of First Place.

The second was Wm. H. Evans of 250 Howes Street. The Meadow Brook Dairy Company, of 984 Fulton Street had been serving milk under the supervision of the Commission of the Medical Society of the County of New York, and they have lately begun to serve it under our label.

The Diamond Dairy Company of Sixth Avenue, corner of Pacific Street are now prepared to serve the milk. Within a few days we expect to be able to announce that Isaac Rushmore of 100 Atlantic Avenue, will be serving milk certified by the Commission.

We are sure this milk is a great advance in the solution of the problem of our milk supply, and we ask the members of the Society to give it their encouragement by giving it a trial.

Besides the printed instructions issued to the milkmen the Commission has sent out a circular of information to the consumers of certified milk which is here appended:

To CONSUMERS OF CERTIFIED MILK:

The Commission appointed by the Medical Society of the County of Kings has succeeded in getting a few dealers to supply a special milk from dairies selected by the Commission. This milk is taken from healthy cows which have been tested and found free from tuberculosis. The barns, pastures, feed, water supply and milking are carefully supervised. The milk is strained, cooled to about 40° F., bottled and kept well iced until it is delivered to the consumers. It is not heated, and nothing is added to it. It is known to contain at least 4 per cent. of butter fat, while the legal standard is 3 per cent. At the time it is delivered to the consumer it contains less than 30,000 bacteria per cubic centimeter, which is the test of cleanliness.

Each bottle is closed with a paper cap bearing on it the stamp

of the Commission and the date when the dealer's permission to use the label expires. Above this cap is another bearing the date of bottling. These two caps are held in place and the bottle securely sealed by a layer of pure paraffin, which, while hot, is run on the top of the cap, and allowed to solidify.

Before the expiration of the date on the label a sample of the milk is examined, and, if found to comply with the requirements of the Commission, new labels are issued bearing another date. Samples of milk are examined at least once in two weeks, and sometimes oftener. Dairies are inspected at regular intervals.

No milk kept or transported in cans is certified. Only milk from single dairies is certified, thus securing milk of uniform daily composition.

While milk conforming to the standards of the Commission will keep sweet longer than ordinary milk, it must be distinctly understood that this result is obtained entirely by extreme cleanliness in every stage of its production and transportation, and by the liberal use of ice. It should keep sweet for forty-eight hours or even longer when kept in the ice chamber of an ordinary refrigerator.

The Commission advises the use of this milk for all purposes for which ordinary milk is used, and especially for feeding infants and sick persons.

The responsibility of the Commission and of the dealer ceases when the milk is delivered to the consumer, as they cannot control the conditions under which it is kept after delivery.

This milk should be put on ice *as soon as it is delivered*, and kept on ice until required for use.

ELIAS H. BARTLEY, M.D., <i>Chairman.</i> WILLIAM A. DE LONG, M.D., <i>Secretary.</i> Z. TAYLOR EMERY, M.D., GLENWORTH R. BUTLER, M.D., JACOB FUHS, M.D., EZRA H. WILSON, M.D. PETER SCOTT, M.D., LE GRAND KERR, M.D., GOULD MEYNAN, M.D., H. A. BUNKER, M.D.	<i>Milk Commission.</i>
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PATHOLOGY.

Knox, J. H. Mason, and Warfield, L. M.: The Leukocyte Count in the Summer Diarrheas of Children. (*Bull. of the Johns Hopkins Hospital*. Vol. viii., No. 136.)

The results obtained in 24 cases observed at the Thomas Wilson Sanitarium last summer accord with those obtained by Alfred Japha in Heubner's Clinic in Berlin, and published last year. All the patients suffered from some form of digestive disturbance; most of them were extremely ill and were seen rather late in the course of the disease. The blood of a number of healthy infants was counted as a control. The writers conclude: 1.—A differential count of leukocytes in the blood of well children under two years of age, when compared with the blood of adults, shows that there is a relative increase in the small mononuclear elements and a decrease in the number of polymorphonuclear cells. 2.—In the summer diarrheas of infants the number of leukocytes in the blood is usually increased but the count of the white cells varies within such wide limits, even in the milder forms of the affection, that a high or low leukocytosis cannot be regarded as of diagnostic value. 3.—In the simple dyspepsias of childhood a differential count of the leukocytes does not show any marked variation from that of a healthy infant, but as the cases become more severe in type there is apparently a progressive increase in the polymorphonuclear neutrophile cells and a decrease in those of the small mononuclear variety, thus presenting a picture more like that of adult blood. 4.—As pointed out by Japha, the polymorphonuclear leukocytosis is an indication of an intoxication with decomposition products in the intestine or of the toxins of pathological bacteria, *i.e.*, it takes place both in the cases of acute intestinal poisoning and in the more severe forms of ileocolitis. 5.—The cases of simple infantile atrophy present a nearly normal differential leukocyte count, but it would seem that an increase of the polymorphonuclear cells may indicate the setting in of an inflammatory intestinal complication.

Duval and Bassett: The Etiology of the Summer Diarrheas of Infants: A Preliminary Report. (*American Medicine*. Vol. iv., No. 11.)

From 42 typical cases of summer diarrhea the authors succeeded in isolating from the stools bacillus dysenteriae Shiga.

The specific organism was also secured from scrapings of the intestinal mucosa at autopsy, and in one case from the mesenteric lymph nodes and liver. It was present in large numbers in the stools of acute cases, but was secured with difficulty from cases of mild character and those of long duration, on account of its presence in relatively small numbers and the antagonism of the normal intestinal bacteria. The specific bacilli isolated from these cases were identical with the dysenteric bacillus isolated by Shiga, Flexner, Strong, Kruse, and Vedder and Duval from cases of acute dysentery. Agglutinative reactions were obtained when the organisms were tested (*a*) with the blood serum of the patients from whom they were secured; (*b*) with the serum of other infants suffering from summer diarrhea; (*c*) with the serum of adults with acute dysentery; (*d*) with anti-dysenteric immune serum. The specific bacillus was not found in the stools of twenty-five healthy children, nor of those suffering with simple diarrhea, marasmus and malnutrition; nor did the blood serum of these latter individuals agglutinate the dysenteric bacillus.

The authors believe themselves justified in concluding that the summer diarrheas of infants are caused by intestinal infection with bacillus dysenteriae Shiga, and therefore are etiologically identical with the acute bacillary dysentery of adults. The cases studied, from which the dysentery bacillus was isolated, include examples of so-called dyspeptic diarrhea, of enterocolitis, and of malnutrition and marasmus with superimposed infection.

MEDICINE.

Nobécourt and Voisin: Apoplectic Form of Tuberculous Meningitis; Diagnosis by Lumbar Puncture. (*Rev. Mens. des Mal. de l'Enf.* Vol. xx., No. 9.)

A little girl of three and a half years entered the hospital for bronchitis of a mild type. She became suddenly comatose, with mild rigidity of the lower extremities and slight convulsive twitchings on the right side, later becoming more marked but ceasing before death. Respiration and pulse were irregular, and death occurred sixty hours after onset of the coma. The diagnosis lay between meningitis or hemorrhage of cerebral or meningeal origin. Lumbar puncture withdrew a clear, albuminous fluid containing numerous lymphocytes and some polynuclear

cells. Cultures remained sterile, and injection into a white mouse had no effect on the animal. A guinea pig developed tuberculosis after being inoculated with the fluid.

An autopsy performed on the child showed a typical tuberculous meningitis, and also two cheesy tuberculous masses in the dura mater as large as a hazel nut. The lungs were not tuberculous. In the bronchial lymph nodes some recent tubercles were found, while the oldest lesions were in the intestines and mesenteric lymph nodes, pointing to the digestive tract origin of the tuberculosis. Clinically, the visceral tuberculosis had been entirely latent.

Peters, Lindsay: **Malarial Fever in Infancy, Probably Maternal in Origin.** (*Bulletin of the Johns Hopkins Hospital*. Vol. xiii., No. 135, June, 1902.)

The writer alludes to the fact repeatedly stated by other authors, that since the discovery of the malarial organism no cases of undoubted congenital malaria have been published.

He describes a case observed by him which he thinks offers strong evidence in favor of the existence of congenital malaria. Shortly before giving birth to a child, a woman who had been subject to malaria had a severe shaking chill, followed by fever and sweating. Immediately afterward severe uterine contractions began and with only a few severe labor pains the child was expelled.

The writer first saw the woman on the third day of the puerperium, when her temperature was 104°. Malarial organisms were found in her blood. Hasty examination of fresh blood from the infant's ear was made three or four days after birth and no organisms were seen. About seven weeks after her confinement the woman brought the infant to the hospital, stating that since the second week of life it had been cold and feverish by turns and had grown very pale. From the high grade of anemia present, Dr. Peters argues that the case was not a recent one. The child was born in the third story of a house in a non-malarious locality, where, according to investigation, the anopheles mosquito is very rare. The infant was not taken from the room in which it was born until a week previous to the time the physician was consulted.

While admitting the possibility of error, Dr. Peters thinks that the facts of the case point to intrauterine infection.

SURGERY.

Mitchell, James: The Surgical Treatment of Tuberculous Cervical Adenitis. (*Bull. of the Johns Hopkins Hospital.* Vol. viii., No. 136, July, 1902.)

One hundred and seventy cases of tuberculous disease of the lymph nodes of the neck form the basis of this communication. Of 13,000 surgical patients, 1,098 were admitted for tuberculosis, and of these, 170 with tuberculous nodes of the neck; that is, 8 per cent. of all the surgical patients were admitted for tuberculosis and 1.3 per cent. of all for tuberculous lymph nodes of the neck. The neck cases comprise 15 per cent. of all those with tuberculosis, and are exceeded in number only by those with hip-joint disease. Of whites there were 83 cases, of negroes, 61 or about 4.3. In 34 of the cases there was no note on the condition of the lungs before operation; 89 were stated as being negative; 13 as suspicious, and 7 showed positive evidence of tuberculosis.

Radical operation, that is removal of all the nodes in the neck with surrounding fat, was done in 59 cases. The dangers of the operation are said to be slight and its mortality practically zero. Injury to the thoracic duct should be avoided in operating on the left side of the neck.

From the study of the cases here recorded and their subsequent observation, and from the results of others, the following conclusions are drawn: 1.—Tuberculous adenitis is primarily a local disease of very frequent occurrence, more often in young persons; in itself not extremely serious and rarely if ever proving fatal. 2.—It bears, however, a certain definite relation to tuberculosis of the lungs and serves as the starting point from which tuberculosis may spread. 3.—The tuberculin test as an aid to diagnosis is positive and harmless. 4.—While recovery may often take place under good hygienic conditions surgical interference is clearly demanded in most cases. 5.—When surgical treatment is resorted to the operation should be radical. 6.—Recovery may be predicted in 70 to 80 per cent. of cases so treated. Tuberculosis of the lungs after complete removal of the nodes is comparatively rare. 7.—Tuberculosis of the lungs unless far advanced is not a contraindication to operation, the removal of the nodes apparently exerting a beneficial influence on the condition of the lungs.

Marsh, J. P.: Congenital Absence of the Entire Esophagus with Report of a Case. (*American Journal of the Medical Sciences.* Vol. cxxiv., No. 2.)

The case reported in this paper is the fifth of the kind on record. The child, a boy, was born after a normal pregnancy and with a negative family history. He was apparently well until put to the breast at the age of eight hours, when he became black in the face and vomited bloody mucus and the milk just taken. These symptoms followed every attempt at nursing; convulsions developed two days before death, which occurred on the seventh day. At the autopsy there was an aspiration pneumonia of both lungs and absence of the entire esophagus, a few very fine fibrous bands being present between the blind ending of the esophagus at the suprasternal notch and a termination of normal calibre attached to the stomach. This blind esophageal outlet was 1.2 cm. long, the stomach measuring 5.2 cm. from the tip of the cardiac end to the pylorus.

Before death a diagnosis of obstruction to the esophagus was made, and gastrostomy was offered and rejected by the parents.

HYGIENE AND THERAPEUTICS.

Polievktov, A.: The Treatment of Angina in Scarlatina by Means of Injections of Phenic Acid into the Tonsils. (*Gazette Médicale Belge.* No. 40, July 3, 1902.)

A. Polievktov (*Medicinisk Obozvénique*, 1902, 10) treated 110 cases of diphtheritic angina in scarlatina according to the method recommended by Prof. Teubner; mild cases were not included in the writer's list. The treatment consists in the injection of phenic acid of 3 to 5 per cent. into the thickest portion of the tonsils, and occasionally into the surrounding mucosa, by means of a Pravaz syringe with a long needle.

The Russian physician somewhat modified this method, using a syringe having a capacity of 3 c.c., with a canula attached at right angles; the solution employed by him did not exceed 3 per cent. For patients under four years old, not more than 3 centigr. of phenol were injected each time. Older children received 6 centigr. of the solution at each seance. The treatment was repeated daily until the temperature was permanently lowered. Upon the occurrence of smoky urine the injections are of course discontinued.

The maximum number of seances was eight. In children treated thus the mortality was 16 per cent.

Patients receiving this treatment show a rapid diminution of temperature, the throat clearing up. Suppurative adenitis, a frequent complication of scarlatinal anginas, does not occur. No other internal medication was employed in these cases; gargles or irrigation with sol. of boric acid were used. The writer advises beginning the injections of phenic acid as soon as the diagnosis of scarlatina is made.

Standish, Myles : Contagious Conjunctivitis. (*The Boston Medical and Surgical Journal.* Vol. cxlvii., No. 14.)

The statistics of the dispensary service of the Massachusetts Charitable Eye and Ear Infirmary show that there has been a steady decline in the proportion of cases of trachoma during the past fifteen years. This epoch has been distinguished by the introduction of antiseptic methods and surgical intervention as a substitute for the old routine treatment with caustics and astringents. Corneal complications have become very infrequent. In 1897 the author was instrumental in securing the exclusion of trachomatous emigrants, and since that date the proportion of the disease has sunk to 0.9 per cent. of all eye cases. The best treatment is expression by Prince's forceps, followed by thorough disinfection of the evacuated crypts with sublimate (1 to 50). Antisepsis should also be maintained afterward.

Since 1896 all cases of gonorrhreal conjunctivitis have been treated as in-patients only. The mothers were not allowed to accompany the babies who were fed according to a strict schedule, copied from that of the West End Infants' Hospital. The death rate has been very small. Protargol is used locally and has given better results than the old nitrate of silver treatment in preventing corneal implication. In monocular infection the sound eye is thickly dusted with iodoform and covered with cotton and collodium.

Diphtheritic conjunctivitis is extremely rare, especially when not associated with faucial lesions. In the few cases treated at the Infirmary in recent years the use of antitoxin appeared to be of great benefit, especially in arresting the disease before it could involve the cornea.

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